

MA 18P 2305160000000000152  
NEW

## State of Maine



### Master Agreement

**Effective Date:** 07/01/23

**Expiration Date:** 06/30/25

**Master Agreement Description:** School Bus, Type C, Electric, 77 Capacity

#### Buyer Information

William Allen	207-624-7871	ext. NULL	WJE.Allen@maine.gov
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#### Issuer Information

Cheryl Brackett	207-624-6770	ext.	Cheryl.Brackett@Maine.gov
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#### Requestor Information

Cheryl Brackett	207-624-6770	ext.	Cheryl.Brackett@Maine.gov
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#### Agreement Reporting Categories

#### Authorized Departments

ALL

### Vendor Information

**Vendor Line #:** 1

#### Vendor ID

VS0000026783

#### Vendor Name

H.K Truck Services Inc

#### Alias/DBA

#### Vendor Address Information

2624-A Hamilton bvlid

South Plainfield, NJ 07080

US

#### Vendor Contact Information

Henry Knabe III  
 908 754 3330 ext. 340  
 henryk@hktruck.com

### Commodity Information

**Vendor Line #:** 1

**Vendor Name:** H.K Truck Services Inc

**Commodity Line #:** 1

**Commodity Code:** 07033

**Commodity Description:** School Buses, Complete, Conventional Type

**Commodity Specifications:**

**Commodity Extended Description:** School Bus, Type C, Electric, 77 Capacity

<b>Quantity</b>	<b>UOM</b>	<b>Unit Price</b>
0.00000		0.000000
<b>Delivery Days</b>	<b>Free On Board</b>	
0		
<b>Contract Amount</b>	<b>Service Start Date</b>	<b>Service End Date</b>
0.00	07/01/23	06/30/25
<b>Catalog Name</b>	<b>Discount</b>	
	0.0000 %	
	<b>Discount Start Date</b>	<b>Discount End Date</b>

Please see authorized signatures displayed on the next page

Each signatory below represents that the person has the requisite authority to enter into this Contract. The parties sign and cause this Contract to be executed.

State of Maine - Department of Administrative and Financial Services

DocuSigned by:  
*David Morris* 6/21/2023  
2A644AE5681E482  
\_\_\_\_\_  
Signature Date

David Morris, Acting Chief Procurement Officer

and

H.K Truck Services Inc

DocuSigned by:  
*Henry Knabe III* 6/21/2023  
0BDB7CFE8488481  
\_\_\_\_\_  
Signature Date

henry Knabe III, General Manager

## RIDERS

<input checked="" type="checkbox"/>	The following riders are hereby incorporated into this Contract and made part of it by reference: (check all that apply)
<input checked="" type="checkbox"/>	Rider A – MA User Information and/or Specifications
<input checked="" type="checkbox"/>	Rider B – Terms and Conditions
<input type="checkbox"/>	Rider C - Exceptions
<input checked="" type="checkbox"/>	Bid Cover Page and Debarment Form – Appendix A from RFQ
<input checked="" type="checkbox"/>	Municipality Political Subdivision and School District Participation Certification – Appendix D from RFQ
<input checked="" type="checkbox"/>	Vendor Bus Specs
<input type="checkbox"/>	Other – Included at Department’s Discretion

**RIDER A**  
**Master Agreement User Information and/or Specifications**  
**MA 230516-152**

**Commodity:** School Bus, Type C, Electric, 77 Capacity

**The State reserves the right to add other similar items or commodities to the MA if it's in the State's best interest but does not obligate the State to purchase similar noncontracted items or commodities from the selected bidder.**

**Master Agreement Competitive Bid RFQ:** 05A 230327-236

**Contract Period:** Through June 30, 2025. The State of Maine with vendor approval can opt to issue up to one (1) two (2) year and one (1) one (1) year extensions.

**Vendor Contact Person:** The vendor contact person will help consumers place orders, inquire about orders that have not been delivered, all shipping issues, quality issues and any issues pertaining to the Master Agreement (MA) contract. All orders not submitted through a Delivery Order will be sent through the vendor contact person. The vendor contact person for this MA is:

**Name:** Henry Knabe III **Tel:** 908-754-3330 Ext, 340 **Email:** [henryk@hktruck.com](mailto:henryk@hktruck.com)

**Prices:** Prices are with shipping terms of "Free on Board (FOB) – Destination". The State intends for this to mean that all goods shall be priced to include shipping charges, if any, to the State's desired location. The "FOB – Destination" shipping term is also intended to mean that the State shall not bear any responsibility for the goods in question until the State takes possession of them at the destination point of delivery.

**Price and Rate Guarantee Period:** All quoted prices and rates must be guaranteed for and must remain firm for minimally one year of the initial contract period. Any approved price or rate adjustments must be held firm for minimally one year or the remainder of the contract period if there is less than one year remaining. Price adjustment requests must be made by the vendor(s) at least sixty (60) days prior to the effective date. Requests for price adjustments must include sufficient documentation from the manufacture documenting the request is based on the vendor's actual cost increases. The price adjustment will not go into effect until the contract amendment has been fully approved by the State of Maine. The Bidder must deliver the buses at the contracted price at the time the order is placed.

**Authorized Users:** All State of Maine Departments, Agencies and statewide public school systems.

**Quantities:** It is understood and agreed that the MA will cover the actual quantities required by the State over the length of the contract.

DS  
HKZ

**Ordering Procedures:** Delivery Orders (DO) will be created in AdvantageME for all orders from State Agencies. If a DO is used, the DO will be emailed to the email address referenced on the MA as a .pdf file. Public school systems will handle their own orders and will be responsible for all payments.

**Delivery and Inspection:** The requested items will be inspected after delivery. If shipment is deemed unacceptable the delivery will be refused and will be returned at the risk and expense of the selling vendor.

### **Specifications**

All buses must meet all applicable Federal Motor Vehicle Safety Standards (FMVSS's) issued by the U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA) and all applicable State and Federal Laws, including the current National School Transportation Specifications and Procedures (2015). All buses must meet or exceed Code of Maine Regulations (05-071 CMR Chap. 86) Maine Uniform School Bus Specifications.

Vehicle and component parts must be of the highest quality and workmanship available in the various trades and of substantial, durable, and safe construction. In all cases materials and construction of the vehicle must be furnished as specified.

All units or parts not herein contained or specified shall be manufacturer's standard. All parts shall be new. In no case will used, reconditioned, or obsolete parts be accepted. Insofar as possible, parts and equipment in any one vehicle shall be a duplicate in manufacture, design and construction and shall be interchangeable with parts and equipment in any other vehicle in the proposal.

## **RIDER B TERMS AND CONDITIONS**

- 1. DEFINITIONS:** The following definitions are applicable to these standard terms and conditions:
  - a. The term "Buyer" or "State" shall refer to the Government of the State of Maine or a person representing the Government of the State of Maine.
  - b. The term "Department" or "DAFS" shall refer to the State of Maine Department of Administrative and Financial Services.
  - c. The term "Bureau" or "BGS" shall refer to the State of Maine Bureau of General Services.
  - d. The term "Division" shall refer to the State of Maine Division of Purchases.
  - e. The term "Contractor", "Vendor", or "Provider" shall refer to the organization that is providing goods and/or services through the contract to which these standard terms and conditions have been attached and incorporated.
  - f. The term "Contract" or "Agreement" shall refer to the contract document to which these standard terms and conditions apply, taking the format of a Buyer Purchase Order (BPO) or Master Agreement (MA) or other contractual document that is mutually agreed upon between the State and the Contractor.
  
- 2. WARRANTY:** The Contractor warrants the following:
  - a. That all goods and services to be supplied by it under this Contract are fit and sufficient for the purpose intended, and
  - b. That all goods and services covered by this Contract will conform to the specifications, drawing samples, symbols or other description specified by the Division, and
  - c. That such articles are merchantable, good quality, and free from defects whether patent or latent in material and workmanship, and
  - d. That all workmanship, materials, and articles to be provided are of the best grade and quality, and
  - e. That it has good and clear title to all articles to be supplied by it and the same are free and clear from all liens, encumbrances and security interest.

Neither the final certificate of payment nor any provision herein, nor partial nor entire use of the articles provided shall constitute an acceptance of work not done in accordance with this agreement or relieve the Contractor liability in respect of any warranties or responsibility for faulty material or workmanship. The Contractor shall remedy any defects in the work and pay any damage to other work resulting therefrom, which shall appear within one year from the date of final acceptance of the work provided hereunder. The Division of Purchases shall give written notice of observed defects with reasonable promptness.

- 3. TAXES:** Contractor agrees that, unless otherwise indicated in the order, the prices herein do not include federal, state, or local sales or use tax from which an exemption is available for purposes of this order. Contractor agrees to accept and use tax exemption certificates when supplied by the Division as applicable. In case it shall ever be determined that any tax included in the prices herein was not required to be paid by Contractor, Contractor agrees to notify the Division and to make prompt application for the refund thereof, to take all proper steps to procure the same and when received to pay the same to the Division.

**4. PACKING AND SHIPMENT:** Deliveries shall be made as specified without charge for boxing, carting, or storage, unless otherwise specified. Articles shall be suitably packed to secure lowest transportation cost and to conform to the requirements of common carriers and any applicable specifications. Order numbers and symbols must be plainly marked on all invoices, packages, bills of lading, and shipping orders. Bill of lading should accompany each invoice. Count or weight shall be final and conclusive on shipments not accompanied by packing lists.

**5. DELIVERY:** Delivery should be strictly in accordance with delivery schedule. If Contractor's deliveries fail to meet such schedule, the Division, without limiting its other remedies, may direct expedited routing and the difference between the expedited routing and the order routing costs shall be paid by the Contractor. Articles fabricated beyond the Division's releases are at Contractor's risk. Contractor shall not make material commitments or production arrangements in excess of the amount or in advance of the time necessary to meet delivery schedule, and, unless otherwise specified herein, no deliveries shall be made in advance of the Division's delivery schedule. Neither party shall be liable for excess costs of deliveries or defaults due to the causes beyond its control and without its fault or negligence, provided, however, that when the Contractor has reason to believe that the deliveries will not be made as scheduled, written notice setting forth the cause of the anticipated delay will be given immediately to the Division. If the Contractor's delay or default is caused by the delay or default of a subcontractor, such delay or default shall be excusable only if it arose out of causes beyond the control of both Contractor and subcontractor and without fault of negligence or either of them and the articles or services to be furnished were not obtainable from other sources in sufficient time to permit Contractor to meet the required delivery schedule.

**6. FORCE MAJEURE:** The State may, at its discretion, excuse the performance of an obligation by a party under this Agreement in the event that performance of that obligation by that party is prevented by an act of God, act of war, riot, fire, explosion, flood or other catastrophe, sabotage, severe shortage of fuel, power or raw materials, change in law, court order, national defense requirement, or strike or labor dispute, provided that any such event and the delay caused thereby is beyond the control of, and could not reasonably be avoided by, that party. The State may, at its discretion, extend the time period for performance of the obligation excused under this section by the period of the excused delay together with a reasonable period to reinstate compliance with the terms of this Agreement.

**7. INSPECTION:** All articles and work will be subject to final inspection and approval after delivery, notwithstanding prior payment, it being expressly agreed that payment will not constitute final acceptance. The Division of Purchases, at its option, may either reject any article or work not in conformity with the requirements and terms of this order, or re-work the same at Contractor's expense. The Division may reject the entire shipment where it consists of a quantity of similar articles and sample inspection discloses that ten (10%) percent of the articles inspected are defective, unless Contractor agrees to reimburse the Division for the cost of a complete inspection of the articles included in such shipment. Rejected material may be returned at Contractor's risk and expense at the full invoice price plus applicable incoming transportation charges, if any. No replacement of defective articles of work shall be made unless specified by the Division.



**8. INVOICE:** The original and duplicate invoices covering each and every shipment made against this order showing Contract number, Vendor number, and other essential particulars, must be forwarded promptly to the ordering agency concerned by the Vendor to whom the order is issued. Delays in receiving invoice and also errors and omissions on statements will be considered just cause for withholding settlement without losing discount privileges. All accounts are to be carried in the name of the agency or institution receiving the goods, and not in the name of the Division of Purchases.

**9. ALTERATIONS:** The Division reserves the right to increase or decrease all or any portion of the work and the articles required by the bidding documents or this agreements, or to eliminate all or any portion of such work or articles or to change delivery date hereon without invalidating this Agreement. All such alterations shall be in writing. If any such alterations are made, the contract amount or amounts shall be adjusted accordingly. In no event shall Contractor fail or refuse to continue the performance of the work in providing of articles under this Agreement because of the inability of the parties to agree on an adjustment or adjustments.

**10. TERMINATION:** The Division may terminate the whole or any part of this Agreement in any one of the following circumstances:

- a. The Contractor fails to make delivery of articles, or to perform services within the time or times specified herein, or
- b. If Contractor fails to deliver specified materials or services, or
- c. If Contractor fails to perform any of the provisions of this Agreement, or
- d. If Contractor so fails to make progress as to endanger the performance of this Agreement in accordance with its terms, or
- e. If Contractor is adjudged bankrupt, or if it makes a general assignment for the benefit of its creditors or if a receiver is appointed on account of its insolvency, or
- f. Whenever for any reason the State shall determine that such termination is in the best interest of the State to do so.

In the event that the Division terminates this Agreement in whole or in part, pursuant to this paragraph with the exception of 8(f), the Division may procure (articles and services similar to those so terminated) upon such terms and in such manner as the Division deems appropriate, and Contractor shall be liable to the Division for any excess cost of such similar articles or services.

**11. NON-APPROPRIATION:** Notwithstanding any other provision of this Agreement, if the State does not receive sufficient funds to fund this Agreement and other obligations of the State, if funds are de-appropriated, or if the State does not receive legal authority to expend funds from the Maine State Legislature or Maine courts, then the State is not obligated to make payment under this Agreement.

**12. COMPLIANCE WITH APPLICABLE LAWS:** Contractor agrees that, in the performance hereof, it will comply with applicable laws, including, but not limited to statutes, rules, regulations or orders of the United States Government or of any state or political subdivision(s) thereof, and the same shall be deemed incorporated herein by reference. Awarding agency requirements and regulations pertaining to copyrights and rights in data. Access by the grantee, the subgrantee, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers and records of the Contractor which are directly pertinent to that specific contract for the purpose of making audit, examination,

excerpts, and transcriptions. Retention of all required records for three years after grantees or subgrantees make final payments and all other pending matters are closed. Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h), section 508 of the Clean Water Act, (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and subgrants of amounts in excess of \$100,000). Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).

**13. INTERPRETATION:** This Agreement shall be governed by the laws of the State of Maine as to interpretation and performance.

**14. DISPUTES:** The Division will decide any and all questions which may arise as to the quality and acceptability of articles provided and installation of such articles, and as to the manner of performance and rate of progress under this Contract. The Division will decide all questions, which may arise as to the interpretation of the terms of this Agreement and the fulfillment of this Agreement on the part of the Contractor.

**15. ASSIGNMENT:** None of the sums due or to become due nor any of the work to be performed under this order shall be assigned nor shall Contractor subcontract for completed or substantially completed articles called for by this order without the Division's prior written consent. No subcontract or transfer of agreement shall in any case release the Contractor of its obligations and liabilities under this Agreement.

**16. STATE HELD HARMLESS:** The Contractor agrees to indemnify, defend, and save harmless the State, its officers, agents, and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, material men, laborers and other persons, firm or corporation furnishing or supplying work, services, articles, or supplies in connection with the performance of this Agreement, and from any and all claims and losses accruing or resulting to any person, firm or corporation who may be injured or damaged by the Contractor in the performance of this Agreement.

**17. SOLICITATION:** The Contractor warrants that it has not employed or written any company or person, other than a bona fide employee working solely for the Contractor to solicit or secure this Agreement, and it has not paid, or agreed to pay any company, or person, other than a bona fide employee working solely for the Contractor any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon, or resulting from the award for making this Agreement. For breach or violation of this warranty, the Division shall have the absolute right to annul this agreement or, in its discretion, to deduct from the Agreement price or consideration, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gifts, or contingent fee.

**18. WAIVER:** The failure of the Division to insist, in any one or more instances, upon the performance of any of the terms, covenants, or conditions of this order or to exercise any right hereunder, shall not be construed as a waiver or relinquishment of the future performance of any such term, covenant, or condition or the future exercise of such right, but the obligation of Contractor with respect to such future performance shall continue in full force and effect.

**19. MATERIAL SAFETY:** All manufacturers, importers, suppliers, or distributors of hazardous chemicals doing business in this State must provide a copy of the current Material Safety Data Sheet (MSDS) for any hazardous chemical to their direct purchasers of that chemical.

**20. COMPETITION:** By accepting this Contract, Contractor agrees that no collusion or other restraint of free competitive bidding, either directly or indirectly, has occurred in connection with this award by the Division of Purchases.

**21. INTEGRATION:** All terms of this Contract are to be interpreted in such a way as to be consistent at all times with this Standard Terms and Conditions document, and this document shall take precedence over any other terms, conditions, or provisions incorporated into the Contract.

**22. ORDER OF PRECEDENCE.** In the event of a conflict between the documents comprising this Agreement, the Order of Precedence shall be:

- a. Exceptions - If applicable
- b. General Terms & Conditions for Goods and/or Services under Buyer Purchase Orders  
and Master Agreements
- c. Scope of Work - If applicable
- d. Vender Agreement - Included at Department's Discretion
- e. Other - Included at Department's Discretion

## Appendix A


STATE OF MAINE  
DEPARTMENT OF ADMINISTRATIVE AND FINANCIAL SERVICES  
DIVISION OF PROCUREMENT SERVICES

**BID COVER PAGE and DEBARMENT FORM**

Bidder's Organization Name: H.K Truck Services Inc		
Chief Executive - Name/Title: Henry Knabe III / General Manager		
Tel: 908 754 3330 ext 340	Fax: 908 427 4112	E-mail: henryk@hktruck.com
Headquarters Street Address: 2624 A Hamilton Boulevard		
Headquarters City/State/Zip: South Plainfield, New Jersey, 07080		
<i>(provide information requested below if different from above)</i>		
Lead Point of Contact for Bid - Name/Title:		
Tel:	Fax:	E-mail: Sales@HKTruck.com
Street Address:		
City/State/Zip:		

By signing below Bidder affirms:

- Their bid complies with all requirements of this RFQ;
- This bid and the pricing structure contained herein will remain firm for a period of 180 days from the date and time of the bid opening;
- That no personnel currently employed by the Department or any other State agency participated, either directly or indirectly, in any activities relating to the preparation of the Bidder's proposal;
- That no attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a proposal; and
- The undersigned is authorized to enter into contractual obligations on behalf of the above-named organization.

Name: Henry Knabe III	Title: General Manager
<b>To have your bid accepted, this Appendix MUST have an actual wet signature or utilize DocuSign or Adobe Sign forms of electronic signature.</b>	
Authorized Signature: 	Date: 21/04/2023


**Debarment, Performance, and Non-Collusion Certification**

*By signing this document, I certify to the best of my knowledge and belief that the aforementioned organization, its principals, and any subcontractors named in this proposal:*

- a. *Are not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from bidding or working on contracts issued by any governmental agency.*
- b. *Have not within three years of submitting the proposal for this contract been convicted of or had a civil judgment rendered against them for:*
  - i. *fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government transaction or contract.*
  - ii. *violating Federal or State antitrust statutes or committing embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;*
  - iii. *are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and*
  - iv. *have not within a three (3) year period preceding this proposal had one or more federal, state or local government transactions terminated for cause or default.*
- c. *Have not entered into a prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services and this proposal is in all respects fair and without collusion or fraud. The above mentioned entities understand and agree that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.*

- **Failure to provide this certification may result in the disqualification of the Bidder’s proposal, at the discretion of the Department.**

*To the best of my knowledge all information provided in the enclosed proposal, both programmatic and financial, is complete and accurate at the time of submission.*

Name: Henry Knabe III	Title: General Manager
<b>To have your bid accepted, this Appendix MUST have an actual wet signature or utilize Docu Sign or Adobe Sign forms of electronic signature.</b>	
Authorized Signature: 	Date: 21/04/2023

Appendix D

STATE OF MAINE  
DEPARTMENT OF ADMINISTRATIVE AND FINANCIAL SERVICES  
DIVISION OF PROCUREMENT SERVICES

MUNICIPALITY POLITICAL SUBDIVISION and SCHOOL DISTRICT PARTICIPATION  
CERTIFICATION

**RFQ # 05A 230327-236  
School Bus, All Fuel Types**

The Division of Procurement Services is committed to providing purchasing opportunities for **municipalities, political subdivisions and school districts** in Maine by allowing them access, through our vendors, to our contract pricing. A bidder's willingness to extend contract pricing to these entities will be taken into consideration in making awards.

**Orders from Municipality, Political Subdivisions and School Districts (Appendix D):** If the bidder elects to permit Municipality, Political Subdivisions and School Districts to utilize the resulting Master Agreement Contract, The State of Maine will not be responsible for any order placed by these groups. All orders will originate from these groups and they will be liable for all payments.

Will you accept orders from political subdivisions and school districts in Maine at the prices quoted?

Yes

Yes, with conditions as follows:

No

**Name of Company:**

H.K Truck Services, Inc

**Address:**

2624-A Hamilton Boulevard, South Plainfield, New Jersey, 07080

**Signature:**



**Date:** 21/04/2023

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>Category Description</b>	<b>Base Bid Spec and Description</b>	<b>Check</b>
<b>Fuel</b>	<b>Electric</b>	X
<b>Chassis Options</b>		
AIR CLEANER	A. A dry element air cleaner shall be provided. B. All diesel engine air filters shall include a latch-type restriction indicator that retains the maximum restriction developed during operation of the engine. The indicator should include a reset control so the indicator can be returned to zero when desired.	Refer to affirmative statement in H.K Truck Services, Inc response document
AXLES	The front and rear axle and suspension systems shall have a gross axle weight rating (GAWR) at ground commensurate with the respective front and rear weight loads of the bus loaded to the rated passenger capacity.	X
BRAKES: GENERAL. A.	A. The chassis brake system shall conform to the provisions of FMVSS No. 105, Hydraulic and Electric Brake Systems, 106, Brake Hoses, and 121, Air Brake Systems, as applicable. All buses shall have either a parking pawl in the transmission or a park brake interlock that requires the service brake to be applied to allow release of the parking brake.	X
BRAKES: GENERAL. B.	B. The anti-lock brake system (ABS), provided in accordance with FMVSS No. 105, Hydraulic and Electric Brake Systems or No. 121, Air Brake Systems, shall provide wheel speed sensors for each front wheel and for each wheel on at least one rear axle. The system shall provide anti-lock braking performance for each wheel equipped with sensors (Four Channel System).	X
BRAKES: GENERAL. C.	C. All brake systems shall be designed to permit visual inspection of brake lining wear without removal of any chassis component(s).	X
BRAKES: GENERAL. D.	D. The brake lines, booster-assist lines, and control cables shall be protected from excessive heat, vibration and corrosion and installed in a manner that prevents chafing.	X
BRAKES: GENERAL. E.	E. The parking brake system for either air or hydraulic service brake systems may be of a power-assisted design. The power parking brake actuator should be a device located on the instrument panel within reach of a seated 5th percentile female driver. As an option, the parking brake may be set by placing the automatic transmission shift control mechanism in the "park" position.	X
BRAKES: GENERAL. F.	F. The power-operated parking brake system may be interlocked to the engine key switch. Once the parking brake has been set and the ignition switch turned to the "off" position, the parking brake cannot be released until the key switch is turned back to the "on" position.	Refer to affirmative statement in H.K Truck Services, Inc response document
BRAKES: HYDRAULIC	Buses using hydraulic-assist brakes shall meet requirements of FMVSS 105.	X
BRAKES: AIR. A.	A. The air pressure supply system shall include a desiccant-type air dryer installed according to the manufacturer's recommendations. The air pressure storage tank system may incorporate an automatic drain valve.	X
BRAKES: AIR. B.	B. The chassis manufacturer shall provide an accessory outlet for air-operated systems installed by the body manufacturer. This outlet shall include a pressure protection valve to prevent loss of air pressure in the service brake reservoir.	Refer to affirmative statement in H.K Truck Services, Inc response document
BRAKES: AIR. C.	C. For air brake systems, an air pressure gauge shall be provided in the instrument panel capable of complying with Commercial Driver's License (CDL) pre-trip inspection requirements.	X
BRAKES: AIR. D.	D. Air brake systems shall include a system for anti-compounding of the service brakes and parking brakes.	X

Product Category	Bus: Conventional	
BRAKES: AIR. E.	E. Air brakes shall have both a visible and audible warning device whenever the air pressure falls below the level where warnings are required under FMVSS No. 121, <i>Air Brake Systems</i> .	X
BUMPER: FRONT A.	A. School buses shall be equipped with a front bumper.	X
BUMPER: FRONT B.	B. The front bumper on buses of Type A-2 (with GVWR greater than 14,500 pounds), Type B, Type C, and Type D shall be equivalent in strength and durability to pressed steel channel at least 3/16 inches thick and not less than 8 inches wide (high). It shall extend beyond the forward-most part of the body, grille, hood, and fenders and shall extend to the outer edges of the fenders at the bumper's top line. Type A buses having GVWR of 14,500 pounds or less may be equipped with OEM--supplied front bumper. The front bumper shall be of sufficient strength to permit being pushed by another vehicle on a smooth surface with a 5 degree, (8.7percent) grade, without permanent distortion. The contact point on the front bumper is intended to be between the frame rails, with as wide a contact area as possible. If the front bumper is used for lifting, the contact points shall be under the bumper attachments to the frame rail brackets unless the manufacturer specifies different lifting points in the owner's manual. Contact and lifting pressures should be applied simultaneously at both lifting points.	X
BUMPER: FRONT C.	C. The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight, per Section B, without permanent distortion to the bumper, chassis or body.	X
BUMPER: FRONT D.	D. The bumper shall be designed or reinforced so that it will not deform when the bus is lifted by a chain that is passed under the bumper (or through the bumper if holes are provided for this purpose) and attached to both tow hooks/eyes. For the purpose of meeting this specification, the bus shall be empty and positioned on a level, hard surface, and both tow hooks/eyes shall share the load equally.	X
BUMPER: REAR A.	A. The bumper on Type A-1 buses shall be a minimum of 8 inches wide (high). Bumpers on Types A-2, B, C, and D buses shall be a minimum of 9-1/4 inches wide (high).	X
BUMPER: REAR B.	B. The bumper shall wrap around the back corners of the bus. It shall extend forward at least 12 inches, measured from the rear-most point of the body at the floor line, and shall be mounted flush with the sides of the body or <del>protected with an end panel</del> .	X
BUMPER: REAR C.	C. The bumper shall be attached to the chassis frame in such a manner that it may be removed. It shall be braced to resist deformation of the bumper resulting from impact from the rear of the side. It shall be designed to discourage hitching of rides by an individual.	X
BUMPER: REAR D.	D. The bumper shall extend at least one inch beyond the rear-most part of the body surface, measured at the floor line.	X
BUMPER: REAR E.	E. The bottom of the rear bumper shall not be more than 30 inches above ground level.	X
BUMPER, FRONT	Comply with National Standard. And must have bumpers of glossy black unless painting is impracticable through use of rubber, reflective material or other devices. [29-A MRS	X
CERTIFICATION	Upon request of the state agency having student transportation jurisdiction, the chassis and body manufacturer(s) shall certify that its(their) product(s) meets the state's minimum standards on items which are not covered by FMVSS certificatin requirements of 49 CFR, Part <del>567</del> . <i>Certification</i>	X
COLOR: Maine Statute	The chassis shall be black. " <i>Must have bumpers of glossy black unless painting is impracticable through use of rubber, reflective material or other devices</i> " [29-A Maine Revised Statutes section 2302(D)]. Body, cowl, hood, and fenders shall be in <i>national school bus glossy yellow</i> . State statue [29-A MRS section 2302(C and D)] and Code of Maine Regulations [CMR 05-071 - Chapter 86, section 3(1.A.(1))] apply.	X



<b>Product Category</b>	<b>Bus: Conventional</b>	
DRIVE SHAFT	The drive shaft shall be protected by a metal guard or guards around the circumference of the drive shaft to reduce the possibility of its whipping through the floor or dropping to the ground, if broken.	X
ELECTRICAL SYSTEM: A. Battery	A. 1. The storage batteries shall have minimum cold cranking capacity rating (cold cranking amps) equal to the cranking current required 30 seconds at 0 degrees Fahrenheit and a minimum reserve capacity rating of 120 minutes at 25 amps. Higher capacities may be required, depending upon optional equipment and local environmental conditions. 2. The manufacturer shall securely attach the battery on a slide-out or swing-out tray in a closed, vented compartment in the body skirt or chassis frame so that the battery is accessible for convenient servicing from the outside. When in the stored position, the tray shall be retained by a securing mechanism capable of holding the tray [with battery(ies)] in position when subjected to a 5g load from any direction. The battery compartment door or cover, if separate from the tray, shall be hinged at the front or top. It shall be secured by a positive operated latching system or other type fastener. The door may be an integral part of the batter slide tray. the door or cover must fit tightly to the body, and not present sharp edges or snagging points. Battery cables shall meet SAE requirements. Batter cables shall be of sufficient length to allow the battery tray to fully extend. Any chassis frame-mounted batteries shall be relocated to a battery compartment on Type A buses. 3. All batteries are to be secured in a sliding tray except that on van conversion or cutaway front-section chassis, batteries may be secured in accordance with the manufacturer's standard configuration. In these cases, the final location of the battery and the appropriate cable lengths shall be agreed upon mutually by the chassis and body manufacturers. However, in all cases the battery cable provided with the chassis shall have sufficient length to allow some slack, and shall be of sufficient gauge to carry the required amperage. 4. Buses may be equipped with a battery shut-off switch. The switch is to be placed in a location not readily accessible to the driver or passengers.	X
ELECTRICAL SYSTEM: B. Alternator	B. 1. All type A and Type B buses with a GVWR of 15,000 pounds or less shall have a minimum 130-amp alternator. Buses equipped with an electrically powered wheelchair lift and/or air conditioning shall be equipped with the highest rated capacity available from the chassis OEM. 2. All buses over 15,000 pounds GVWR shall be equipped with a heavy-duty truck-or-bus-type alternator having a minimum output rating of 200 amps or higher, and should produce a minimum current output of 50 percent of the rating at engine idle speed. 3. All other buses than those described in B1 equipped with an electrically powered wheelchair lift and/or air conditioning shall have a minimum alternator output of 240 amps and may be equipped with a device that advances the engine idle speed when the voltage drops to, or below, a pre-set level. 4. A belt-driven alternator shall be capable of handling the rated capacity of the alternator with no detrimental effect on any other driven components. (For estimating required alternator capacity, see School Bus Manufacturers Technical Council's publication, "School Bus Technical Reference," available at <a href="http://www.nasdpts.org">http://www.nasdpts.org</a> ) 5. A direct/gear-drive alternator is permissible in lieu of a belt-driven alternator.	Refer to affirmative statement in H.K Truck Services, Inc response document
ELECTRICAL SYSTEM: C. Electrical Components	C. Materials in all electrical components shall contain no mercury.	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
ELECTRICAL SYSTEM: D. Wiring, Chassis	D. 1. All wiring shall conform to current applicable recommended practices of the Society of Automotive Engineers (SAE). All wiring shall use color and at least one other method for identification. The other method shall be either a number code or name code, and each chassis shall be delivered with a wiring diagram that illustrates the wiring of the chassis. 2. The chassis manufacturer of an incomplete vehicle shall install a readily accessible terminal strip or connector on the body side of the cowl or in an accessible location in the engine compartment of vehicles designed without a cowl. The strip or connector shall contain the following terminals for the body connections: a. Main 100-amp body circuit; b. Tail lamps; c. Right turn signal; e. Stop lamps; f. Back-up lamps; and g. Instrument panel lamps (controlled by dimmer switch). 3. An appropriate identifying diagram (color plus a name or number code) for all chassis electrical circuits shall be provided to the body manufacturer for distribution to the end user. 4. Wiring for the headlamp system must be separate from the electronic controlled body solenoid/module.	X
ELECTRICAL SYSTEM: E. Wiring, Body: 1-6	E. 1. All wiring shall conform to current applicable SAE recommended practices. 2. All wiring shall have an amperage capacity exceeding the design load by at least 25%. All wiring splices are to be accessible and noted as splices on the wiring diagram. 3. A body wiring diagram, sized to be easily read, shall be furnished with each bus body or affixed to an area convenient to the electrical accessory control panel. 4. The body power wire shall be attached to a special terminal on the chassis. 5. Each wire passing through metal openings shall be protected by a grommet. 6. Wires not enclosed within the body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equally effective connectors, which shall be water-resistant and corrosion-resistant.	X
ELECTRICAL SYSTEM: E. Wiring, Body: 7	E. 7. Wiring shall be arranged in circuits, as required, with each circuit protected by a fuse breaker or electronic protection device. A system of color and number-coding shall be used and an appropriate identifying diagram shall be provided to the end user, along with the wiring diagram provided by the chassis manufacturer. The wiring diagrams shall be specific to the bus model supplied and shall include any changes to wiring made by the body manufacturer. Chassis wiring diagrams shall be supplied to the end user. The following body interconnecting circuits shall be color-coded, as noted by function: Left Rear Directional Lamp (Yellow), Right Rear Directional Lamp (Dark Green), Stop Lamps (Red), Tail Lamps (Brown), Ground (White), and Ignition Feed, Primary Feed (Black). The color of the cables shall correspond to SAE J1128, <i>Low-Tension Primary Cable</i> .	X
ELECTRICAL SYSTEM: E. Wiring, Body: 8-12	E. 8. Wiring shall be arranged in at least six (6) regular circuits, as follows: a. Head, tail, stop (brake), clearance and instrument panel lamps; b. Step well lamps shall be actuated when the entrance door is open; c. Dome lamps; d. Ignition and emergency door signal; e. Turn signal lamps; and f. Alternately flashing signal lamps. 9. Any of the above combination circuits may be subdivided into additional independent circuits. 10. Heaters and defrosters shall be wired on an independent circuit. 11. Whenever possible, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits. 12. Each body circuit shall be coded by number or letter on a diagram of circuits and shall be attached to the body in a readily accessible location.	X
ELECTRICAL SYSTEM: F. Power Port	F. Buses may be equipped with a 12-volt power port in the driver's area.	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
ELECTRICAL SYSTEM: G. Noise Suppression	G. There shall be a manual noise suppression switch installed in the control panel. The switch shall be labeled and alternately colored. This switch shall be an on/off type that deactivates body equipment that produces noise, including at least the AM/FM radio, heaters, air conditioners, fans, and defrosters. This switch shall not deactivate safety systems, such as windshield wipers or lighting systems.	X
ELECTRICAL SYSTEM: H. Voltage	H. The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted.	X
EXHAUST SYSTEM	Must comply with National Specifications and Maine Motor Vehicle Inspection Manual (REFER TO MAINE MANUAL).	X
EXHAUSE PIPE	The exhaust pipe must be entirely outside the passenger compartment of a school bus. [29-A MRS section 2305(2)]	X
EXHAUST SYSTEM: A-C	A. The exhaust pipe, after-treatment system and tailpipe shall be outside the bus body compartment and shall be attached to the chassis so any other chassis component is not damaged. B. The tailpipe and after-treatment system shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel tubing of equal diameter. C. The tailpipe may be flush with, or shall not extend more than two inches beyond, the perimeter of the body for side-exit pipe. The exhaust system shall be designed such that exhaust gas will not be trapped under the body of the bus.	X
EXHAUST SYSTEM: D-F	D. The tailpipe shall exit to the left or right of the emergency exit door in the rear of the vehicle or to the left side of the bus in front of or behind the rear drive axle or the tailpipe may extend through the bumper. The tailpipe exit location on all Types A-1 or B-1 buses may be in accordance to the manufacturer's standards. The tailpipe shall not exit beneath any fuel filler location, emergency door, or lift door. E. The exhaust shall be insulated in a manner to prevent any damage to any fuel system component. F. The design of the after treatment systems shall not allow active (non-manual) regeneration of the particulate filter during the loading and unloading of passengers. Manual regeneration systems will be designed such that unintentional operation will not occur.	X
EXHAUST SYSTEM: G	G. For after treatment systems that require Diesel Exhaust Fluid (DEF) to meet federally mandated emissions: 1. The composition of Diesel Exhaust Fluid (DEF) must comply with International Standard ISO 22241-1. Refer to engine manufacturer for any additional DEF requirements. 2. The DEF supply tank shall be sized to meet a minimum ratio of 3 diesel fills to 1 DEF fill.	Refer to affirmative statement in H.K Truck Services, Inc response document
FENDERS: FRONT	A. When measured at the fender line, the total spread of the outer edges of front fenders shall exceed the total spread of front tires when front wheels are in a straight-ahead position. B. Front fenders shall be properly braced and shall not require attachment to any part of the body.	X
FIRE SUPPRESSION SYSTEMS (Optional)	A. The chassis manufacturer may provide an automatic fire extinguisher system in the engine compartment. B. Fire suppression system nozzles shall be located in the engine compartment, under the bus, in the electrical panel or under the dash, but they shall not be located in the passenger compartment. The system must include a lamp or buzzer to alert the driver that the system has been activate.	Refer to affirmative statement in H.K Truck Services, Inc response document

Product Category	Bus: Conventional	
FRAME	A. Frame lengths shall be established in accordance with the design criteria for the complete vehicle. B. Making holes in top or bottom flanges or side units of the frame and welding to the frame shall not be permitted except as provided or accepted by the chassis manufacturer. C. Frames shall not be modified for the purpose of extending the wheel base. D. Any secondary manufacturer that modifies the original chassis frame shall provide a warranty at least equal to the warranty offered by the original equipment manufacturer (OEM), and shall certify that the modification and other parts of equipment affected by the modification shall be free from defects in material and workmanship under normal use and service intended by the OEM.	X
FUEL SYSTEM: A.-E. Fuel Tanks	A. Fuel tank(s) having a minimum 25-gallon capacity shall be provided by the chassis manufacturer. Each tank shall be filled from and vented to the outside of the passenger compartment, and each fuel filler should be placed in a location where accidental fuel spillage will not drip or drain or any part of the exhaust system. B. The fuel system shall comply with FMVSS No. 301, Fuel System Integrity. C. Fuel tank(s) may be mounted between the chassis frame rails or outboard of the frame rails on either the left or right side of the vehicle. D. The actual draw capacity of each fuel tank shall be a minimum of 83 percent of the tank capacity. E. Installation of alternative fuel systems, including fuel tanks and piping from the tank to the engine, shall comply with all applicable fire codes in effect on the date of manufacture of the bus.	X
FUEL SYSTEM: F. Liquefied Petroleum Gas (LPG)	F. Installation of Liquefied Petroleum Gas (LPG) tanks shall comply with National Fire Protection Association (NFPA) 58, <i>Liquefied Petroleum Gas Code</i> .	Refer to affirmative statement in H.K Truck Services, Inc response document
FUEL SYSTEM: G.-H. Compressed Natural Gas (CNG)	G. Installation of Compressed Natural Gas (CNG) containers shall comply with FMVSS No. 304, Compressed Natural Gas Fuel Container Integrity. H. The CNG Fuel System shall comply with FMVSS No. 303, <i>Fuel System Integrity of Compressed Natural Gas Vehicles</i> .	Refer to affirmative statement in H.K Truck Services, Inc response document
FUEL TANK FILLER, VENT, DRAIN OPENINGS	The fuel tank filler, vent and drain openings must be outside the school bus body. [29-A MRS Section 2305(3)]	X
GOVERNOR	An electronic engine speed limiter shall be provided and set to limit engine speed, not to exceed the maximum revolutions per minute, as recommended by the engine manufacturer.	Refer to affirmative statement in H.K Truck Services, Inc response document
HEATING SYSTEM, PROVISION FOR	The engine shall be capable of supplying coolant at a temperature of at least 170 degrees Fahrenheit at the engine coolant thermostat opening. The coolant flow rate shall be 50 pounds per minute at the return end of 30 feet of one (1) inch inside diameter automotive hot water heater hose. (See SBMTC-001, <i>Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment</i> .)	Refer to affirmative statement in H.K Truck Services, Inc response document
HORN	The bus shall be equipped with a horn(s) of standard make with the horn(s) capable of producing a complex sound in bands of audion frequencies between 250 and 2,000 cycles per second, and tested in accordance with SAE J377, <i>Horn - Forward Warning - Electric - Performance, Test, and Application</i> .	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
INSTRUMENTS AND INSTRUMENT PANEL: A.	A. The chassis shall be equipped with the instruments and gauges listed here. Note: Telltale warning lamps in lieu of gauges are not acceptable, except as noted. 1. Speedometer; 2. Odometer that can be read without using a key and that will give accrued mileage (to seven digits), including tenths of miles, unless tenths of miles are registered on a trip odometer; 3. Tachometer; Note: for types B, C, and D buses, a tachometer shall be installed so as to be visible to the driver while seated in a normal driving position. 4. Voltmeter; Note: An ammeter with graduated charge and discharge indications is permitted in lieu of a voltmeter; however, when used, the ammeter wiring must be compatible with the current flow of the system. 5. Oil pressure gauge; 6. Water temperature gauge; 7. Fuel gauge; 8. High beam headlamp indicator; 9. Brake air pressure gauge (air brakes), brake indicator lamp (vacuum/hydraulic brakes), or brake indicator lamp (hydraulic/hydraulic); 10. Turn signal indicator; and 11. Glow-plug indicator lamp, where appropriate.	Refer to affirmative statement in H.K Truck Services, Inc response document
INSTRUMENTS AND INSTRUMENT PANEL: B.	B. All instruments shall be easily accessible for maintenance and repair.	X
INSTRUMENTS AND INSTRUMENT PANEL: C.	C. The instruments and gauges shall be mounted on the instrument panel so that each is clearly visible to the driver while seated in a normal driving position.	X
INSTRUMENTS AND INSTRUMENT PANEL: D.	D. Instruments and controls must be illuminated as required by FMVSS No. 101, <i>Controls and Displays</i> .	X
INSTRUMENTS AND INSTRUMENT PANEL: E.	E. Multi-Function Gauge (MFG): 1. The driver must be able to manually select any displayable function of the gauge on a MFG, whenever desired. 2. Whenever an out-of-limits condition that would be displayed on one or more functions of a MFG occurs, the MFG controller should automatically display this condition on the instrument cluster. This should be in the form of an illuminated telltale warning lamp, as well as having the MFG automatically display the out-of-limits indications. If two or more functions displayed on the MFG go out of limits simultaneously, then the MFG should sequence automatically between those functions continuously until the condition(s) are corrected. 3. The use of a MFG does not relieve the need for audible warning devices, where required.	X
MOUNTING	A. The rear body cross member shall be supported by the chassis frame. Except where chassis components interfere, the bus body shall be attached to the chassis frame at each main floor sill in such a manner as to prevent shifting or separation of the body from the chassis under severe operating conditions. B. Isolators shall be installed at all contact points between the body and the chassis frame on Types A-2, B, C, and D buses, and shall be secured by a positive means to the chassis frame or body to prevent shifting, separation, or displacement of the isolators under severe operating conditions.	X
OIL FILTER	An oil filter with a replaceable element shall be provided and connected by flexible oil lines if it is not a built-in or an engine-mounted design. The oil filter shall have a capacity in accordance with the engine manufacturer's recommendation.	Refer to affirmative statement in H.K Truck Services, Inc response document
OPENINGS	All openings in the floorboard or firewall between the chassis and the passenger compartment (e.g., for gearshift selector and parking brakes lever) shall be sealed.	X

Product Category	Bus: Conventional	
PASSENGER LOAD	A. Actual gross vehicle weight (GVW) is the sum of the chassis weight plus the body weight, plus the driver's weight, plus total seated student weight. For purposes of calculation, the driver's weight is 150 pounds and the student weight is 120 pounds per student. B. Actual GVW shall not exceed the chassis manufacturer's GVWR for the chassis, nor shall the actual weight carried on any axle exceed the chassis manufacturer's Gross Axle Weight Rating (GAWR).	X
RETARDER SYSTEM (optional equipment)	A retarder system, if used, shall limit the speed of a fully loaded school bus to 19.0 mph on a 7% grade for 3.6 miles.	Refer to affirmative statement in H.K Truck Services, Inc response document
ROAD SPEED CONTROL	When it is desired to accurately control vehicle maximum speed, a vehicle speed limiter may be utilized.	Refer to affirmative statement in H.K Truck Services, Inc response document
SHOCK ABSORBERS	The bus shall be equipped with double-action shock absorbers compatible with the manufacturer's rated axle capacity at each wheel location.	X
SHUTTERS	None	Refer to affirmative statement in H.K Truck Services, Inc response document
STEERING GEAR	A. The steering gear shall be approved by the chassis manufacturer and designed to ensure safe and accurate performance when the vehicle is operated with maximum load and at maximum speed. B. If external adjustments are required, the steering mechanism shall be accessible to make adjustments. C. Changes shall not be made to the steering apparatus which are not approved by the chassis manufacturer. D. There shall be a clearance of at least two inches between the steering wheel and cowl, instrument panel, windshield or any other surface. E. Power steering is required and shall be of the integral type with integral valves. F. The steering system shall be designed to provide a means for lubrication of all wearpoints that are not permanently lubricated.	Refer to affirmative statement in H.K Truck Services, Inc response document
SUSPENSION SYSTEM	A. The capacity of springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR. B. Rear leaf springs shall be of a progressive rate or multi-stage design. Front leaf springs shall have a stationary eye at one end and shall be protected by a wrapped leaf, in addition to the main leaf. Shall comply with National Standards.	X
THROTTLE	The force required to operate the throttle shall not exceed 16 pounds throughout the full range of accelerator pedal travel.	X
TIRES & RIMS	A. Rims and tires of the proper size and load rating commensurate with the chassis manufacturer's GVWR shall be provided. The use of multi-piece rims and/or tube-type tires shall not be permitted on any school bus ordered after December 31, 1995. B. Dual rear tires shall be provided on Type A-2, Type B, Type C, and Type D school buses. C. All tires on a vehicle shall be of the same size, and the load range of the tires shall meet or exceed the GVWR, as required by FMVSS No. 120, <i>Tire Selection and Rims for Vehicles other than Passenger Car</i> . D. If the vehicle is equipped with a spare tire and rim assemble, it shall be the same size as those mounted on the vehicle. E. If a tire carrier is required, it shall be suitable mounted in an accessible location outside of the passenger compartment. Standard is no Spare Tire or Rim.	X
TRANSMISSION, AUTOMATIC	A. Automatic transmissions shall have no fewer than three forward speeds and one reverse speed. Mechanical shift selectors shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering-column mounted. B. Automatic transmissions shall have a transmission shifter interlock controlled by the application of the service brake to prohibit accidental engagement of the transmission. PTS2500 Shall comply with National Standards. PTS2500 5-speed is standard specification.	Refer to affirmative statement in H.K Truck Services, Inc response document

Product Category	Bus: Conventional	
TURNING RADIUS	A chassis with a wheel base of 264 inches or less shall have a right and left turning radius of not more than 42-1/2 feet, curb-to-curb measurement. A chassis with a wheelbase of 265 inches or more shall have a right and left turning radius of not more than 44-1/2 feet, curb-to-curb measurement.	X
UNDERCOATING	A. The entire underside of the bus body, including floor sections, cross member and below floor-line side panels, shall be coated with rust-proofing material for which the material manufacturer has issued to the bus body manufacturer a notarized certification to the bus body manufacturer that materials meet or exceed all performance requirements of SAE J1959, Sept. 2003 Edition of the Standard. B. The undercoating material shall be applied with suitable airless or conventional spray equipment to the undercoating material manufacturer recommended film thickness and shall show no evidence of voids in the cured film. C. The undercoating material shall not cover any exhaust components of the chassis.	X
<b>Body Options</b>		
ACCESS	A school bus must be constructed to permit the operator access to the passenger compartment without leaving the vehicle. [29-A MRS Section 2305(1)]	X
AIR CONDITIONING, PASSENGER COMPARTMENT (optional)	The specifications are applicable to all types of school buses that may be equipped with air conditioning. This section is divided into three parts. Part 1 covers performance specifications, Part 2 covers test conditions, and Part 3 covers other requirements applicable to all buses.	X
AISLE	All emergency exit doors shall be accessible by a 12-inch minimum aisle. The aisle shall be unobstructed at all times by any type of barrier, seat, wheelchair or tie-down, unless a flip seat is installed and occupied. The track of a track seating system is exempt from this requirement. A flip seat in the unoccupied (up) position shall not obstruct the 12-inch minimum aisle to any side emergency exit door.	X
BACK-UP WARNING ALARM	An automatic audible alarm shall be installed behind the rear axle and shall comply with the published Backup Alarm Standards (SAE J994b), providing a minimum of 112 dBA, or shall have a variable volume feature that allows the alarm to vary from 87 dBA to 112 dBA sound level, staying at least 5 dBA above the ambient noise level. Shall comply with National Standards.	X
BUMPER: FRONT A.	A. School buses shall be equipped with a front bumper.	X
BUMPER: FRONT B.	B. The front bumper on buses of Type A-2 (with GVWR greater than 14,500 pounds), Type B, Type C, and Type D shall be equivalent in strength and durability to pressed steel channel at least 3/16 inches thick and not less than 8 inches wide (high). It shall extend beyond the forward-most part of the body, grille, hood, and fenders and shall extend to the outer edges of the fenders at the bumper's top line. Type A buses having GVWR of 14,500 pounds or less may be equipped with OEM-supplied front bumper. The front bumper shall be of sufficient strength to permit being pushed by another vehicle on a smooth surface with a 5 degree, (8.7percent) grade, without permanent distortion. The contact point on the front bumper is intended to be between the frame rails, with as wide a contact area as possible. If the front bumper is used for lifting, the contact points shall be under the bumper attachments to the frame rail brackets unless the manufacturer specifies different lifting points in the owner's manual. Contact and lifting pressures should be applied simultaneously at both lifting points.	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
BUMPER: FRONT C.	C. The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight, per Section B, without permanent distortion to the bumper, chassis or body.	X
BUMPER: FRONT D.	D. The bumper shall be designed or reinforced so that it will not deform when the bus is lifted by a chain that is passed under the bumper (or through the bumper if holes are provided for this purpose) and attached to both tow hooks/eyes. For the purpose of meeting this specification, the bus shall be empty and positioned on a level, hard surface, and both tow hooks/eyes shall share the load equally.	X
BUMPER: REAR A.	A. The bumper on Type A-1 buses shall be a minimum of 8 inches wide (high). Bumpers on Types A-2, B, C, and D buses shall be a minimum of 9-1/4 inches wide (high).	X
BUMPER: REAR B.	B. The bumper shall wrap around the back corners of the bus. It shall extend forward at least 12 inches, measured from the rear-most point of the body at the floor line, and shall be mounted flush with the sides of the body or protected with an end panel.	X
BUMPER: REAR C.	C. The bumper shall be attached to the chassis frame in such a manner that it may be removed. It shall be braced to resist deformation of the bumper resulting from impact from the rear of the side. It shall be designed to discourage hitching of rides by an individual.	X
BUMPER: REAR D.	D. The bumper shall extend at least one inch beyond the rear-most part of the body surface, measured at the floor line.	X
BUMPER: REAR E.	E. The bottom of the rear bumper shall not be more than 30 inches above ground level.	X
CERTIFICATION	Upon request of the state agency having student transportation jurisdiction, the chassis and body manufacturer(s) shall certify that its(their) product(s) meets the state's minimum standards on items which are not covered by FMVSS certification requirements of 49 CFR, Part 567. Certification	X
COLOR. A. BODY.	A. The school bus body "must be painted national school bus glossy yellow, except that the hood may be lusterless black" [29-A Maine Revised Statutes section 2302( C )].	X
COLOR. B. EXTERIOR TRIM.	B. The body exterior trim, as defined by individual states, shall be black. "Must have bumpers of glossy black unless painting is impracticable through use of rubber, reflective material or other devices" [29-A Maine Revised Statutes section 2302(D)].	X
COLOR. C. ROOF	C. Roof. State statute [29-A MRS section 2302( C )] and Code of Maine Regulations [CMR 05-071 - Chapter 86, section 3(1.A.(1))] apply: "Roof color exception: a white roof on a school bus is not a state school bus specification."	X
COLOR. D. CHASSIS AND FRONT BUMPER.	D. The chassis shall be black. "Must have bumpers of glossy black unless painting is impracticable through use of rubber, reflective material or other devices" [29-A Maine Revised Statutes section 2302(D)]. Body, cowl, hood, and fenders shall be in national school bus glossy yellow. State statute (29-A MRS section 2302(C and D)) and Code of Maine Regulations [CMR 05-071 - Chapter 86, section 3(1.A.(1))] apply.	X
COLOR. E. WHEELS.	E. Wheels may be silver, gray, white, yellow, or black.	X
COLOR. F. MULTIFUNCTION SCHOOL ACTIVITY BUSES.	F. Multifunction school activity buses (MFSABs) shall be exempt from these [color] requirements.	X



<b>Product Category</b>	<b>Bus: Conventional</b>	
CONSTRUCTION	<p><b>A. Side Intrusion Test:</b> The bus body shall be constructed to withstand an intrusion force equal to the curb weight of the vehicle of 20,000 pounds, whichever is less. Each vehicle shall be capable of meeting this requirement when tested in accordance with the procedures set forth below. The complete body structure, or a representative seven-body section mock up with seats installed, shall be load-tested at a location 24 +/- 2 inches above the floor line, with a maximum 10 inch diameter cylinder, 48 inches long, mounted in a horizontal plane. The cylinder shall be placed as close as practical to the mid-point of the tested structure, spanning two internal vertical structural members. The cylinder shall be statically loaded to the required force of curb weight of 20,000 pounds, whichever is less, in a horizontal plane with the load applied from the exterior toward the interior of the structure. When the minimum load has been applied, the penetration of the loading cylinder into the passenger compartment shall not exceed 10 inches from its original point of contact. There can be no separation of lapped panels or construction joints. Punctures, tears, or breaks in the external panels are acceptable but are not permitted on any adjacent interior panel. Body companies shall certify compliance with this intrusion requirement, and include test results, as requested. <b>B.</b> Construction shall be reasonably dust-proof and watertight.</p>	X
CROSSING CONTROL ARM. A, B, C	<p><b>A.</b> School buses of model year 2021 or newer <b>MUST</b> be equipped with a crossing control arm [29-A M.R.S. section 2302(1-A)]. The crossing control arm may be mounted on the right side of the front bumper. When opened, this arm shall extend in a line parallel to the body side and aligned with the right front wheel. <b>B.</b> All components of the crossing control arm and all connections shall be weatherproofed. <b>C.</b> The crossing control arm shall incorporate system connectors (electrical, vacuum, or air) at the gate and shall be easily removable to allow for towing of the bus.</p>	X
CROSSING CONTROL ARM. D, E, F	<p><b>D.</b> The crossing control arm shall be constructed of non-corrodible or nonferrous material or shall be treated in accordance with the body sheet metal specification. (See bus body and chassis specifications, metal treatment.) <b>E.</b> There shall be no sharp edges or projections that could cause injury or be a hazard to students. The end of the arm shall be rounded. <b>F.</b> The crossing control arm shall extend a minimum of 70 inches (measured from the bumper</p>	X
CROSSING CONTROL ARM. G, H, I	<p><b>G.</b> The crossing control arm shall extend simultaneously with the stop signal arm(s), activated by stop signal arm controls. <b>H.</b> An automatic recycling interrupt switch may be installed for temporarily disabling the crossing control arm. <b>I.</b> The assembly shall include a device attached to the bumper near the end of the arm to automatically retain the arm while in the stowed position. That device shall not interfere with normal operations of the crossing control arm.</p>	Refer to affirmative statement in H.K Truck Services, Inc response document
DEFROSTERS. A.	<p><b>A.</b> Defrosting and defogging equipment shall direct a sufficient flow of heated air onto the windshield, the window to the left of the driver and the glass in the viewing area directly to the right of the driver to eliminate frost, fog, and snow. <b>NOTE:</b> The requirements of this standard do not apply to the exterior surfaces of double pane storm windows.</p>	X
DEFROSTERS. B.	<p><b>B.</b> The defrosting system shall conform to SAE J381, <i>Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles.</i></p>	X

Product Category	Bus: Conventional	
DEFROSTERS. C.	C. The defroster and defogging system shall be capable of furnishing heated, outside ambient air, except that the part of the system furnishing additional air to the windshield, entrance door, and stepwell may be the re-circulating air type.	X
DEFROSTERS. D, E	D. Auxiliary fans are not considered defrosting or defogging systems. E. Portable heaters shall not be used.	X
DOORS	A school bus must be equipped with at least 2 doors as follows: A. One door on the right side near the front for ordinary exits and entrances; and B. A 2nd door located in the center of the rear or if the engine makes that impossible, on the left side in the center or to the rear of center. The 2nd door must be free of obstruction, clearly marked as an emergency exit, and constructed to open from inside and outside. [29-A MRS Section 2304(2)]	X
DOORS. A.	A. The entrance door shall be under the driver's control, designed to afford easy release and to provide a positive latching device on manual operating doors to prevent accidental opening. When a hand lever is used, no part shall come together that will shear or crush fingers. Manual door controls shall not require more than 25 pound of force to operate at any point throughout the range of operation, as tested on a 10% grade, both uphill and downhill.	X
DOORS. B.	B. The primary entrance door shall be located on the right side of the bus, opposite and within direct view of the driver. 1. In addition, buses may be equipped with a left side entrance door located immediately behind the driver to be used exclusively for curb side loading/unloading on one-way streets. 2. Buses equipped with a left side entrance door shall have a mirror mounted in the upper right corner of the interior of the bus so as to provide a clear view of the left side entrance door and stepwell.	X
DOORS. C, D, E	C. The entrance door shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches. D. The entrance door shall be a split-type door and shall open outward. E. All entrance door glass shall be approved safety glass. The bottom of each lower glass panel shall be not more than 10 inches from the top surface of the bottom step. The top of each upper glass panel when viewed from the interior shall be not more than 3 inches below the interior door control cover or header pad.	X
DOORS. F, G, H	F. Vertical closing edges on entrance doors shall be equipped with flexible material. G. All door openings shall be equipped with padding at the top edge of the opening. Padding shall be at least three (3) inches wide and one (1) inch thick and extend the full width of the door opening. H. On power-operated entrance doors, the emergency release valve, switch, or device to release the entrance door must be placed above or to the immediate left or immediate right of the entrance door and must be clearly labeled. The emergency release valve, switch or device shall work in the absence of power.	X
EMERGENCY EQUIPMENT: A. Fire Extinguisher	A. Fire Extinguisher. 1. The bus shall be equipped with at least one UL-approved pressurized, dry chemical fire extinguisher. The extinguisher shall be secured in a mounted bracket, located in the driver's compartment and readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher and shall be easily read without moving the extinguisher from its mounted position. 2. The fire extinguisher shall have a rating of 2-A:10-BC, or greater. The operating mechanism shall be secured with a type of seal that will not interfere with the use of the fire extinguisher.	X

Product Category	Bus: Conventional	
EMERGENCY EQUIPMENT: B. First Aid Kit	B. First Aid Kit. 1. The bus shall have a removable, moisture-proof and dust-proof first aid kit in an accessible place in the driver's compartment. It shall be mounted and identified as a first aid kit. The location for the first aid kit shall be marked. Contents of the first aid kit shall be in compliance with state standards. Suggested contents include: 2 - 1-inch x 2-1/2 yards of adhesive tape rolls; 24 - Sterile gauze pads 3x3 inches; 100 - 3/4 x 3 inches adhesive bandages; 8 - 2-inch bandage compress; 10 - 3-inch bandage compress; 2 - 2-inch x 6 foot sterile gauze roller bandages; 2 - Non-sterile triangular bandages, minimum 39x35x54 inches with two safety pins; 3 - Sterile gauze pads 36x36 inches; 3 - Sterile eye pads; 1 - Rounded-end scissors; 1 - Pair medical examination gloves; 1 - Mouth-to-mouth airway.	X
EMERGENCY EQUIPMENT: C. Body Fluid Clean-Up Kit	C. Body Fluid Clean-Up Kit. Each bus shall have a removable and moisture-proof body fluid clean-up kit accessible to the driver. It shall be mounted and identified as a body fluid cleanup kit. Contents of the body fluid clean-up kit shall be in compliance with state standards.	X
EMERGENCY EQUIPMENT: D. Warning Devices	D. Warning Devices. Each school bus shall contain at least three retroreflective triangle road warning devices that meet the requirements of FMVSS No. 125, <i>Warning Devices</i> . They shall be mounted in an accessible place.	X
EMERGENCY EQUIPMENT: E.	E. Any piece of emergency equipment may be mounted in an enclosed compartment, provided the compartment is labeled in not less than one inch letters, identifying each piece of equipment contained therein.	Refer to affirmative statement in H.K Truck Services, Inc response document
EMERGENCY EXITS: A. Any Installed Emergency Exit	A. Any installed emergency exit shall comply with the design and performance requirements of FMVSS No. 217, <i>Bus Emergency Exits and Window Retention and Release</i> , applicable to that type of exit, regardless of whether or not that exit is required by FMVSS No. 217.	X
EMERGENCY EXITS: B. Emergency Window Requirements	B. Emergency Window Requirements. 1. The rear emergency window shall have a lifting assistance device that will aid in lifting and holding the rear emergency window open. 2. Side emergency exit windows, when installed, may be vertically hinged on the forward side of the window. No side emergency exit window will be located above a stop arm.	X
EMERGENCY EXITS: C. Emergency Door Requirements	C. Emergency Door Requirements. 1. The exposed area of the upper panel of emergency doors shall be a minimum of 400 square inches of approved safety glazing. 2. If installed, all other glass panels on emergency doors shall be approved safety glazing. 3. There shall be no steps leading to an emergency door. 4. There shall be no obstruction higher than 1/4 inch across the bottom of any emergency door opening. Fasteners used within the emergency exit opening shall be free of sharp edges or burrs.	X
EMERGENCY EXITS: D. Emergency Exit Requirements	D. Emergency Exit Requirements. The use of tables is to determine the required number and types of emergency exits to comply with this specification, based on the bus manufacturer's equipped seating capacity. Refer to the National Specifications, Table 1 and Table 2, pages 40 and 41.	X
FIRE EXTINGUISHER	A school bus must have at least one dry chemical fire extinguisher: A. Of at least 2-1/2 pound capacity; B. Mounted in automotive type manufacturer's extinguisher bracket; C. Located in the operator's compartment in full view of and readily accessible to the operator; and D. Having an Underwriters' Laboratories rating of not less than 10-B: C. [29-A MRS Section 2305(4)]	X

Product Category	Bus: Conventional	
FLOORS	<p>A. The floor in the under-seat area, including tops of wheel housings, driver's compartment and toeboard, shall be covered with an elastomer floor covering, having a minimum overall thickness of 0.125 inch and a calculated burn rate of 0.1 mm per minute or less, using the test methods, procedures, and formulas listed in FMVSS No. 302, <i>Flammability of Interior Materials</i>. The driver's area and toeboard area in all Type-A buses may be manufacturer's standard flooring and floor covering. B. The floor covering in the aisles shall be ribbed or other raised pattern elastomer and have a calculated burn rate of 0.1 mm per minute or less using the test methods, procedures, and formulas listed in FMVSS No. 302. Minimum overall thickness shall be 0.187 inch measured from tops of ribs. C. The floor covering must be permanently bonded to the floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be a type recommended by the manufacturer of floor-covering material. All seams shall be sealed with waterproof sealer. D. On Types B, C, and D buses, a flush-mounted screw-down plate that is secured and sealed shall be provided to access the diesel or gasoline fuel tank sending unit and/or fuel pump. This plate shall not be installed under flooring material.</p>	X
HANDRAILS (GRAB RAIL)	<p>At least one handrail shall be installed. The handrail shall be a minimum of one (1) inch diameter and be constructed from corrosion resistant material(s). The handrail(s) shall assist passengers during entry or exit and shall be designed to prevent entanglement, as evidenced by the passing of the NHTSA strin and nut test.</p>	X
HEATING SYSTEM, PROVISION FOR	<p>The engine shall be capable of supplying coolant at a temperature of at least 170 degrees Fahrenheit at the engine coolant thermostat opening. The coolant flow rate shall be 50 pounds per minute at the return end of 30 feet of one (1) inch inside diameter automotive hot water heater hose. (See SBMTC-001, <i>Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment</i>.)</p>	Refer to affirmative statement in H.K Truck Services, Inc response document
HEATING AND AIR CONDITIONING SYSTEMS. A. Heating System (1-4)	<p>1. The heater shall be hot water combustion type, electric heating element or heat pump. 2. If only one heater is used, it shall be fresh-air or combination fresh-air and recirculation type. 3. If more than one heater is used, additional heaters may be re-circulating air type. 4. The heating system shall be capable of maintaining bus interior temperatures, as specified in test procedure SAE J2233.</p>	X
HEATING AND AIR CONDITIONING SYSTEMS. A. Heating System (5)	<p>5. Aluxiliary fuel-fired systems are permitted, provided they comply with the following: a. The auxiliary heating system shall utilize the same type fuel as specified for the vehicle engine; b. The heater(s) may be direct, hot air-type or may be connected to the engine coolant system; c. An auxiliary heating system, when connected to the engine coolant system, may abe used to preheat the engine coolant or preheat and add supplementary heat to the heating system; d. Auxiliary heating systems must be installed pursuant to the manufacturer's recommendations and shall not direct exhause in such a manner that will endanger bus passengers; e. All combustion heaters shall be in compliance with current Federal Motor Carrier Safety Regulations; f. The auxiliary heating system shall require low voltage; g. Auxiliary heating systems shall comply with FMVSS No. 301, <i>Fuel System Integrity</i>, and all other applicable FMVSS, as well as with SAE test procedures.</p>	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>HEATING AND AIR CONDITIONING SYSTEMS.</b> <b>A. Heating System (6-8)</b>	<p>6. All forced-air heaters installed by body manufacturers shall bear a name plate that indicates the heater rating in accordance with SBMTC-001, <i>Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment</i>. The plate shall be affixed by the heater manufacturer and shall constitute certification that the heater performance is as shown on the plate. 7. Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The hoses shall not dangle or rub against the chassis or any sharp edges and shall not interfere with or restrict the operation of any engine function. Heater hoses shall conform to SAE J20c, <i>Coolant System Hoses</i>. Heater lines, cores, and elements on the interior of the bus shall be shielded to prevent scalding or burning of the driver or passengers. 8. Each hot water system installed by a body manufacturer shall include one shutoff valve in the pressure line and one shut-off valve in the return line, with both valves at the engine in an accessible location, except that on Types A and B buses, the valves may be installed in another accessible location.</p>	X
<b>HEATING AND AIR CONDITIONING SYSTEMS.</b> <b>A. Heating System (9-11)</b>	<p>9. All heaters of hot water type in the passenger compartment shall be equipped with a device, installed in the hot water pressure line, which regulates the water flow to all passenger heaters. The device shall be conveniently operated by the driver while seated. The driver and passenger heaters may operate independently of each other for maximum comfort. 10. On hot water type systems, accessible bleeder valves for removing air from the heater shall be installed in an appropriate place in the return lines of body company-installed heater. 11. Access panels shall be provided to make heater motors, cores, elements, and fans readily accessible for service. An exterior access panel to the driver's heater may be provided.</p>	X
<b>HEATING AND AIR CONDITIONING SYSTEMS.</b> <b>B. PASSENGER COMPARTMENT AIR CONDITIONING (optional) 1. Performance Specifications</b>	<p>1. Performance Specifications. a. Standard Performance. The installed air conditioning system should cool the interior of the bus from 100 degrees to 80 degrees Fahrenheit, measured at three points (minimum) located four feet above the floor on the longitudinal centerline of the bus. The three required points shall be: (1) three feet above the center point of the horizontal driver seat surface, (2) at the longitudinal midpoint of the body, and (3) three feet forward of the rear emergency door or, for Type D rear-engine buses, three feet forward of the end of the axle. The independent temperature reading of each temperature probe inside the bus shall be within a range of +/- 3 degrees Fahrenheit of the average temperature at the conclusion of the test. b. High Performance. The installed air conditioning system should cool the interior of the bus from 100 degrees to 70 degrees Fahrenheit, measured at three points (minimum) located four feet above the floor on the longitudinal centerline of the bus. The three required points shall be: (1) three feet above the center point of the horizontal driver seat surface, (2) at the longitudinal midpoint of the body, and (3) three feet forward of the rear emergency door or, for Type D rear-engine buses, three feet forward of the end of the aisle. Note for the Type A vehicle placement of the rear thermocouple should be centered in the bus over the rear axle. The independent temperature reading of each temperature probe inside the bus shall be within a range of +/- 3 degrees Fahrenheit of the average temperature at the conclusion of the test.</p>	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>HEATING AND AIR CONDITIONING SYSTEMS. B. PASSENGER COMPARTMENT AIR CONDITIONING (optional) 2. Test Conditions</b>	2. Test conditions. The test conditions under which the above performance standards must be achieved shall consist of (1) placing the bus in a room (such as a paint booth) where ambient temperature can be maintained at 100 degrees Fahrenheit; (2) heat-soaking the bus at 100 degrees Fahrenheit at a point measured two feet horizontally from the top of the windows on both sides of the bus, with windows open for two hours; and (3) closing windows, turning on the air conditioner with the engine running at 1250 +/- 50 RPM, and cooling the interior of the bus to 80 degrees Fahrenheit, (standard performance) or 70 degrees Fahrenheit (high performance), within 30 minutes while maintaining 100 degrees Fahrenheit outside temperature. The manufacturer shall provide test results that show compliance with standard systems. If the bid specifies, the manufacturer shall provide facilities for the user or user's representative to confirm that a pilot model of each bus design meets the above performance requirements.	X
<b>HEATING AND AIR CONDITIONING SYSTEMS. B. PASSENGER COMPARTMENT AIR CONDITIONING (optional) 3. Other Requirements</b>	3. Other requirements. a. Evaporator cases, lines and ducting (as equipped) shall be designed in such a manner that all condensation is effectively drained to the exterior of the bus below the floor level under all conditions of vehicle movement and without leakage on any interior portion of the bus; b. Evaporators and ducting systems shall be designed and installed to be free of projections or sharp edges. Ductwork shall be installed so that exposed edges face the front of the bus and do not present sharp edges; c. On school buses equipped with Type-2 seatbelts having anchorages above the windows, the ducting (if used) shall be placed at a height sufficient to not obstruct occupant securement anchorages. This clearance shall be provided along the entire length (except at evaporator locations) of the passenger area on both sides of the bus interior; d. The body may be equipped with insulation, including sidewalls, roof, firewall, rear, inside body bows and plywood or composite floor insulation to reduce thermal transfer; e. All glass (windshield, service and emergency doors, side and rear windows) may be equipped with maximum integral tinting allowed by federal, state, or ANSI standards for the respective locations, except that windows rear of the driver's compartment, if tinted, shall have approximately 28 percent light transmission; f. Electrical generating capacity shall be provided to accommodate the additional electrical demands imposed by the air conditioning system; g. Roofs may <i>not</i> be painted white (per Code of Maine Regulations (05-071 CMR Chap. 86); h. Air intake for any evaporator assembly(ies), except for front evaporator or Type A-1, shall be equipped with replaceable air filter(s) accessible without disassembly of evaporator case. i. For all buses (except Type D rear engine transit) equipped with a rear evaporator assembly, evaporator shall not encroach upon head impact zone, but may occupy an area of less than 26.5 inches from the rear wall and 14 inches from the ceiling. j. For Type D rear engine transit buses equipped with a rear evaporator over the davenport, the evaporator assembly may not interfere with rear exit window and may not extend above the rear seating row.	X
<b>HINGES</b>	<b>All exterior metal door hinges shall be designed to allow lubrication to be channeled to the center 75% of each hinge loop without disassembly, unless they are constructed of stainless steel, brass or non-metallic hinge pins or other designs that prevent corrosion.</b>	X
<b>IDENTIFICATION: A. School Bus</b>	<b>A. The body shall bear the words "SCHOOL BUS" in black letters at least eight (8) inches high on both front and rear of the body or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Letters shall conform to "Series B" of Standard Alphabets for Highway Signs. "SCHOOL BUS" lettering shall have a reflective background, or as an option, may be illuminated by backlighting. Multifunction school activity buses are exempt from these requirements.</b>	X
<b>IDENTIFICATION: B. Required lettering and numbering</b>	<b>B. Required lettering and numbering shall include: 1. District, company name or owner of the bus displayed at the beltline. 2. The bus identification number displayed on the sides, on the rear and on the front.</b>	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>IDENTIFICATION: C. Other lettering, numbering, or symbols</b>	<b>C. Other lettering, numbering or symbols which may be displayed on the exterior of the bus shall be limited to: 1. bus identification number, minimum 12-inch high characters, on top of the bus, in addition to required numbering on the sides, rear, and front. 2. The location of the battery(ies) identified by the word "BATTERY" or "BATTERIES" on the battery compartment door in two (2) inch lettering; 3. Symbols or letters not to exceed 64 square inches of total display near the entrance door, displaying information for identification by the students of the bus or route served; 4. Manufacturer, dealer or school identification or logos; 5. Symbols identifying the bus as equipped for or transporting students with special needs as noted in SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS; 6. Lettering on the rear of the bus relating to school bus flashing signal lamps or electronic warning sign; and 7. Lettering relating to railroad stop procedures; and 8. Identification of fuel type in 1-inch lettering adjacent to the fuel filler opening.</b>	X
<b>ILLUMINATED SCHOOL BUS SIGN FRONT AND REAR</b>	<b>Illuminated school bus sign front and rear</b>	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>INSIDE HEIGHT</b>	<b>Inside body height shall be 72 inches or more, measured metal to metal, at a point on the longitudinal centerline from the front vertical bow to the rear vertical bow. Inside body height of Type A-1 buses shall be 62 inches or more. Inside height measurement does not apply to air conditioning equipment.</b>	X
<b>INSULATION: A. Thermal (optional)</b>	<b>A. If thermal insulation is specified, it shall be fire-resistant, UL approved, with minimum R-value of 5.5. Insulation shall be installed so as to prevent sagging.</b>	X
<b>INSULATION: B. Floor (optional)</b>	<b>B. If floor insulation is required, it shall be five-ply softwood plywood, nominal 5/8-inch thickness and shall be equal to or exceed properties of the exterior-type, C-D Grade, as specified in the standard issued by U.S. Department of Commerce. When plywood is used, all exposed edges shall be sealed. Type A-1 buses may be equipped with nominal 1/2-inch-thick plywood or equivalent material meeting the above requirements. Equivalent material may be used to replace plywood, provided it has equal or greater insulation R-value, sound abatement, deterioration-resistant and moisture-resistant properties.</b>	X
<b>INTERIOR: A. Free of Projections</b>	<b>A. The interior of the bus shall be free of all unnecessary projections, which include luggage racks and attendant handrails, to minimize the potential for injury. This specification requires inner lining on ceilings and walls. If the ceiling is constructed with lap joints, the forward panel shall be lapped by rear panel and exposed edges shall be beaded, hemmed, flanged or otherwise treated to minimize sharp edges. Buses must be equipped with a storage compartment for tools, tire chains and/or tow chains. (see BUS BODY AND BODY SPECIFICATIONS, Storage Compartment).</b>	X
<b>INTERIOR: B. Overhead Storage Compartments</b>	<b>B. Interior overhead storage compartments may be provided if they meet the following criteria: 1. Head protection requirements of FMVSS No. 222, <i>School Bus Passenger Seating and Crash Protection</i>, where applicable; 2. Be completely enclosed and equipped with latching door (both door and latch sufficient to withstand a pushing force of 50 pounds applied at the inside center of the door); 3. Have all corners and edges rounded with a minimum radius of one (1) inch or be padded equivalent to door header padding; 4. Be attached to the bus sufficiently to withstand a force equal to 20 times the maximum rated capacity of the compartment; and 5. Have no protrusions greater than 1/4 inch.</b>	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>INTERIOR: C. Driver Area</b>	<b>C. The driver's area forward of the foremost padded barriers will permit the mounting of required safety equipment and vehicle operation equipment.</b>	X
<b>INTERIOR: D. Noise Level</b>	<b>D. Every school bus shall be constructed so that the noise level at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dBA when tested according to the procedure described in APPENDIX B of <i>National School Transportation Specifications and Procedures, May 2015</i>.</b>	X

Product Category	Bus: Conventional	
LAMPS AND SIGNALS: A. Interior Lamps	A. Interior lamps which illuminate the aisle and the stepwell shall be provided. The stepwell lamp shall be illuminated by an entrance door-operated switch, to illuminate only when headlamps and clearance lamps are on and the entrance door is open.	X
LAMPS AND SIGNALS: B. Body Instrument Panel Lamps	B. Body instrument panel lamps may be controlled by an independent dimmer switch or may be controlled by the dimmer that operates the gauge lighting.	X
LAMPS AND SIGNALS: C. Alternately Flashing Signal Lamps	C. School bus alternately flashing signal lamps shall be provided as described by law. Multifunction school activity buses are exempt from this requirement. 1. The bus shall be equipped with two (2) red lamps at the rear of the vehicle and two (2) red lamps at the front of the vehicle. 2. In addition to the four (4) red lamps described above, four (4) amber lamps shall be installed so that one (1) amber lamp is located near each red signal lamp, at the same level, but closer to the vertical centerline of the bus. The system of red and amber signal lamps shall be wired so that amber lamps are energized manually. The red lamps are automatically energized and amber lamps are automatically de-energized when stop signal arms are extended or when the bus entrance door is opened. The above mentioned activation sequence can be accomplished with either a "sequential operation" or a "non-sequential operation" warning lamp system. While each of the systems can be configured to include components such as a master switch, amber activation, interrupt switch, etc., the presence (or absence) of these components does not affect the classification of the system as either sequential or non-sequential. Both sequential and non-sequential systems can be configured with a multitude of switch combinations to provide a unique system meeting specific user requirements. An amber pilot lamp and a red pilot lamp shall be installed adjacent to the driver controls for the flashing signal lamp to indicate to the driver which lamp system is activated. 3. For background color requirements, refer to appropriate state specification requirements. 4. Red lamps shall flash at any time the stop signal arm is extended. 5. All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location. MUST MEET FEDERAL REGULATIONS.	X
LAMPS AND SIGNALS: D. Turn Signal and Stop/Tail Lamps	D. 1. The bus body shall be equipped with amber rear turn signal lamps that are at least seven (7) inches in diameter or, if a shape other than round, a minimum 38 square inches of illuminated area and shall meet FMVSS No. 108, <i>Lamps, Reflective Devices, and Associated Equipment</i> . These signal lamps must be connected to the chassis hazard warning switch to cause simultaneous flashing of turn signal lamps when needed as a vehicular traffic hazard warning. Turn signal lamps are to be placed as wide apart as practical and their horizontal centerline shall be a maximum of 12 inches below the rear window. 2. Buses shall be equipped with amber side-mounted turn signal lamps. The turn signal lamp on the left side shall be mounted rearward of the stop signal arm and the turn signal lamp on the right side shall be mounted rearward of the entrance door. 3. Buses shall be equipped with four (4) combination red stop/tail lamps. a. Two (2) combination lamps with a minimum diameter of seven (7) inches, or if a shape other than round, a minimum 38 square inches of illuminated area shall be mounted on the rear of the bus just inside the turn signal lamps. b. Two (2) combination lamps with a minimum diameter of four (4) inches, or if a shape other than round, a minimum of 12 square inches of illuminated area, shall be placed on the rear of the body between the beltline and the floor line. The rear license plate lamp may be combined with one (1) lower tail lamp. Stop lamps shall be activated by the service brakes and shall emit a steady light when illuminated.	X



Product Category	Bus: Conventional	
LAMPS AND SIGNALS: E. Monitor	E. On buses equipped with a monitor for the front and rear lamps of the school bus, the monitor shall be mounted in full view of the driver. If the full circuit current passes through the monitor, each circuit shall be protected against any short circuit or intermittent shorts by a fuse circuit breaker, or electronic protection device.	X
LAMPS AND SIGNALS: F. White Flashing Strobe Lamp (optional)	F. An optional white flashing strobe lamp may be installed on the roof of a school bus at a location not closer than 12 inches or more than 6 feet from the rear of the roof edge. However, if the bus is equipped with a roof hatch or other roof mounted equipment falling within the above mentioned measurements, the strobe lamp may be located directly behind that equipment. The lamp shall have a single clear lens emitting light 360 degrees around its vertical axis, meeting the requirements of SAE J845. It may not extend above the roof more than the maximum legal height. A manual switch and a pilot lamp shall be included to indicate when the lamp is in operation. Optionally, the strobe lamp may be wired to activate with the amber alternately flashing signal lamps, continuing through the full loading or unloading cycle, and may be equipped with an override switch to allow activation of the strobe at any time for use in inclement weather.	X
LAMPS AND SIGNALS: G. Rear Backup Lamps	G. The bus body shall be equipped with two white rear backup lamps that are at least four (4) inches in diameter or, if a shape other than round, a minimum of 12 square inches of illuminated area, and shall meet FMVSS No. 108. If backup lamps are placed on the same horizontal line as the brake lamps and turn signal lamps, they shall be to the inside.	X
LAMPS AND SIGNALS: H. Daytime Running Lamps System	H. A daytime running lamps (DRL) system shall be provided.	X
LETTERING	Must meet State and National Standards. Lettering must meet Maine Motor Vehicle Statute <b>Title 29-A, section 2302, subsection 1.A-B</b> . Each school bus must be identified with the words, "school bus." All lettering shall be printed in letters not less than 8 inches high and located (front and rear) between the warning signal lamps as high as possible without impairing front and rear visibility of the lettering. Each school bus must have no other lettering on the front or rear, except lettering not more than 4 inches high indicating an emergency exit and a bus number. Lettering specifics provided by each school district.	X
TRIM	Maine Motor Vehicle Statute <b>Title 29-A, section 2302, subsection 1.H</b> . May be equipped with reflective strips of national school bus yellow (NSBY).	X
	Reflexite Brand tape	X
LETTERING; INTERIOR SEAT #'S	Add numbers for interior seats; 2" decal (state quantity)	X
LETTERING; ROOF TOP NUMBERS	Add 24 inch, last 5 digits of vehicle identification number (VIN) (state qty of digits). Price is per digit	X
LICENSE PLATE HOLDER	Shall be on left rear outside of body with suitable method for mounting license plate	X
LIGHT MONITOR, EXTERIOR LIGHTS	None	
	Light monitor system LED	X
	Light monitor system not LED	Refer to affirmative statement in H.K Truck Services, Inc response document
LIGHT, LANDING	Next to entrance door, outside skirt mounted	Refer to affirmative statement in H.K Truck Services, Inc response document
	Delete landing light	
	Change to LED type light	X
	Outside under step mounted	Refer to affirmative statement in H.K Truck Services, Inc response document

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>LIGHT, LED STEPWELL LAMP</b>	None	
	Add LED stepwell lamp	X
<b>LIGHT, STROBE</b>	<b>Strobe light is required. Shall comply with State and National Standards.</b>	X
	Add Brush guard	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>LIGHTS</b>	<b>Lighting system be Weldon 7000 transistorized flasher OR EQUAL OR MULTIPLEX control units and include turn signals, stop lights, marker lights, stepwell lights, parking lights, landing light, interior lights, and eight (8) light warning system. Rear directional signal, side directionals, stop lights, and back-up lights in addition to the regular stop lamps. All exterior lights be bulb and conform to National Standards. (8 way lights include 3" black band around)</b>	X
	Change 8 way to strobing LED	Refer to affirmative statement in H.K Truck Services, Inc response document
	Change the tail, brake, turn and backups to LED style lamps	X
	Change 8 way, tail, brake, back up and turn to LED style lamps	X
<b>LIGHTS, CLEARANCE</b>	Manufacturers standard clearance lights and must meet State and National Standards.	X
	Add armored marker	X
	Change to LED style	X
	Add armored marker and add LED style	X
<b>LIGHT, EMERGENCY DOOR</b>	None	
	Add Red ICC light over emergency door (state Quantity)	X
	Add light over emergency door. One light at the rear over the emergency door shall come on when the marker lights are on. This light shall be red overhead light and wiring shall comply with eight light system.	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>LIGHTS, INTERIOR</b>	One switch to operate dome light over drivers compartment, one switch for dome lights in mid-section of bus, and one switch to operate the last two dome lights in the rear of the bus. The landing light shall be activated when the door opening mechanism is initiated.	Refer to affirmative statement in H.K Truck Services, Inc response document
	<b>LED Dome lights</b>	X
	<b>Add medium dome lights</b>	Refer to affirmative statement in H.K Truck Services, Inc response document
	<b>Add maximum dome lights</b>	X
	<b>Add maximum led dome lights</b>	X
<b>LIGHTS; INTERIOR DRIVER DOME</b>	<b>Included</b>	X
	Delete drivers dome	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>LIGHTS; INTERIOR DOME PASSENGER</b>	<b>Included</b>	X
	Reduce to one switch for passenger	X
<b>LIGHTS TAIL TURN FLUSH MOUNT</b>		
	<b>Stop tail 4" flush mount LED</b>	X
	<b>Stop tail 4" flush mount incandescent</b>	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>LIGHT VISORS</b>	None	
	<b>Individual visors for warning lights in lieu of visors that cover amber and red lights.</b>	X

Product Category	Bus: Conventional	
	Dual light visors for warning lights	Refer to affirmative statement in H.K Truck Services, Inc response document
METAL TREATMENT	<p>A. All metal except high-grade stainless steel or aluminum used in construction of the bus body shall be zinc-coated or aluminum-coated or treated to prevent corrosion. This includes but is not limited to such items as structural members, inside and outside panels, door panels and floor sills. Excluded are such items as door handles, grab handles, interior decorative parts and other interior plated parts. B. All metal parts that will be painted, in addition to the above requirements, shall be chemically cleaned, etched, zinc phosphate-coated and zinc chromate- or epoxy-primed to improve paint adhesion. This includes, but is not limited to, such items as crossing control arm and stop arm. C. In providing for these requirements, particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges on punched or drilled hold areas in sheet metal, closed or box sections, unvented or undrained areas and surfaces subjected to abrasion during chemicle operation. D. As evidence that the above requirements have been met, samples of materials and sections used in the construction of the bus body shall be subjected to a cyclic corrosion testing as outlined n SAE J1563.</p>	X
MIRRORS (29-A))	Must be equipped with a system of mirrors that give the seated operator a view of the way to each side of the bus, and of the area immediately in front of the front bumper. [29-A MRS Section 2302(1.F)]	X
MIRRORS	<p>A. The interior glass mirror shall be either laminated or tempered and shall have rounded corners and protected edges. Mirrors shall be 6x16 inches minimum for Type A buses and be 6x30 inches for Types C and D buses. B. Each school bus shall be equipped with exterior mirrors meeting the requirements of FMVSS No. 111, <i>Rearview Mirrors</i>. The right side rear view mirror shall not be obscured by the unwiped portion of the windshield. Mirrors shall abe easily adjustable, but shall be rigidly braced, so as to reduce vibration. C. Heated external mirrors may be used. D. Remote controlled external rear view mirrors may be used.</p>	X
	Add wide angle reflective lens for rear window	X
MIRRORS, CROSSOVER	Shall come equipped with two convex ellipitical cross-view mirrors mounted on front of vehicle. Shall be heated.	X
MIRRORS, SIDE	Body shall be equipped with two split - style- type side-view mirrors supported from top or bottom. Exterior mirrors shall be heated.	X
MIRRORS BRACKETS	Shall comply with National Standards.	X
MOUNTING	<p>A. The rear body cross member shall be supported by the chassis frame. Except where chassis components interfere, the bus body shall be attached to the chassis frame at each main floor sill in such a manner as to prevent shifting or separation of the body from the chassis under severe operating conditions. B. Isolators shall be installed at all contact points between teh body and the chassis frame on Types A-2, B, C, and D buses, and shall be secured by a positive means to the chassis frame or body to prevent shifting, separation, or displacement of the isolators under severe operting conditions.</p>	X
MUD FLAPS	2 front and full width rear attached appropriately and made of rubber material.	Refer to affirmative statement in H.K Truck Services, Inc response document

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>NOISE REDUCTION SYSTEM</b>	Acoustical headliner full length of bus. Include 1/2" sound abatement package in floor and firewall	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>NOISE REDUCTION FIREWALL</b>	Included	Refer to affirmative statement in H.K Truck Services, Inc response document
	Delete sound abatement to floor of firewall	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>OUTSIDE LUGGAGE STORAGE</b>	Maximum available. If the outside luggage is deleted the body side skirts between the front and rear axles shall extend down to within two inches plus or minus, of the horizontal line from the center of the front spindle to the center of the rear axle. The manufacturer may offer optional side skirt lengths that extend lower than this requirement. This measurement shall apply to a new unloaded school bus located on a flat, level surface. See also Panels, Exterior	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>OUTSIDE LUGGAGE; ACCESSORIES</b>	Add lights In storage units	Refer to affirmative statement in H.K Truck Services, Inc response document
	Add lock for storage units	Refer to affirmative statement in H.K Truck Services, Inc response document
	Add lights & locks for storage units	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>OVERALL LENGTH</b>	Overall length of the bus shall not exceed 45 feet, excluding accessories.	X
<b>OVERALL WIDTH</b>	Overall width of bus shall not exceed 102 inches, excluding accessories.	X
<b>Paneling, EXTERIOR REEDED</b>	Add reeded sides	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>PANEL, SHOULDER PAD</b>	Full bus length	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>POWER SOURCE</b>	12-volt in driver area	X
<b>PUBLIC ADDRESS SYSTEM</b>	A. Buses may be equipped with an AM/FM/audio and/or public address system having interior and exterior speakers. B. No internal speakers, other than the driver's communication systems, may be installed within four feet of the driver's seat back in its rearmost upright position.	X
<b>REFLECTORS</b>	2 amber reflectors on each side of bus near the front and 2 red on rear side panels, 2 red on rear panels, and 2 amber intermediate on sides- Shall comply with FMVSS	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
RETROREFLECTIVE MATERIAL	<p>A. The front and/or rear bumper may be marked diagonally 45 degrees down toward the centerline of the pavement with two (2) plus or minus 1/4 inch-wide strips of non-contrasting retroreflective material. B. The rear of the bus body shall be marked with strips of retroreflective NSBY material to outline the perimeter of the back of the bus using material which conforms with the requirements of FMVSS No. 131, <i>School Bus Pedestrian Safety Devices</i>, Table 1. The perimeter markings of rear emergency exits per FMVSS No. 217, <i>Bus Emergency Exits and Window Retention and Release</i>, and/or the use of retroreflective "SCHOOL BUS" signs partially accomplishes the objective of this requirement. To complete the perimeter marking of the back of the bus, strips of retroreflective NSBY material, a minimum of 1 inch and a maximum of 2 inches in width shall be applied horizontally above the rear windows and above the rear bumper, extending from the rear emergency exit perimeter, marking outward to the left and right rear corners of the bus. Vertical strips shall be applied at the corners connecting these horizontal stripes. Multifunction school activity buses shall be exempt from these color requirements. C. "SCHOOL BUS" signs, if not a lighted design, shall be marked with retroreflective NSBY material comprising background for lettering of the front and/or rear "SCHOOL BUS" signs. D. Sides of the bus body shall be marked with at least 1-3/4 inch retroreflective NSBY material, extending the length of the bus body and located (vertically) between the floor line and the beltline. E. If used, signs placed on the rear of the bus relating to school bus flashing signal lamps or railroad stop procedures may be retroreflective material, as specified by each state. (See also APPENDICES A and B, Retroreflective Sheeting: National School Transportation Specifications and Procedures) School bus markings; . . . Identifications. May be equipped with reflective strips of national school bus yellow. [29-A MRS Section 2302 (1.H)]</p>	X
ROOF VENT, STATIC	Shall comply with National Standards	X
	Delete static roof vent. If static vent is deleted the front roof hatch must contain a static vent per National Standards.	Refer to affirmative statement in H.K Truck Services, Inc response document
ROOF VENT, POWER	Power roof vent (state quantity)	Refer to affirmative statement in H.K Truck Services, Inc response document

<p><b>Product Category</b></p>	<p><b>Bus: Conventional</b></p>	
<p>RUB RAILS</p>	<p>A. There shall be one rub rail on each side of the bus located at, or no more than eight (8) inches above, the seat cushion level. They shall extend from the rear side of the entrance door completely around the bus body (except at the emergency door or any maintenance access door) to the point of curvature near the outside cowl on the left side. B. there shall be one additional rub rail on each side located 10 inches or less above the floor line. The rub rail shall cover the same longitudinal span as the upper rub rail, except at the wheel housing, and it shall extend only to the longitudinal tangent of the right and left rear corners. C. Rub rails above the floor line shall be attached at each body post and at all other upright structural members. D. Each rub rail shall be four (4) inches or more in width in its finished form and shall be constructed of 16-gauge metal or other material of equivalent strength suitable to help protect body side panels from damage. Rub rails shall be constructed in corrugated or ribbed fashion. E. Rub rails shall be applied outside the body or outside the body posts. (Pressed-in or snap-on rub rails do not satisfy this requirement.) For Type A-1 vehicles using the body provided by the chassis manufacturer or for Types A-2, B, C, and D buses containing the rear luggage or the rear engine compartment, rub rails need not extend around the rear corners. F. The bottom edge of the body side skirts shall be stiffened by application of a rub rail, or the edge may be stiffened by providing a flange or other stiffeners.</p>	<p>X</p>
<p>SEATS AND RESTRAINING BARRIERS: A. PASSENGER SEATING</p>	<p>A. 1. School bus design capacities shall be in accordance with 49 CFR, Part 571.3, <i>Definitions</i>, and FMVSS No. 222, <i>School Bus Passenger Seating and Crash Protection</i>. 2. All seats shall have a minimum cushion depth of 15 inches, a seat back height of 24 inches above the seating reference point, and must comply with all other requirements of FMVSS No. 222. 3. All restraining barriers and passenger seats shall be constructed with materials that enable them to meet the criteria of the <i>School Bus Seat Upholstery Fire Block Test</i>. 4. Each seat leg shall be secured to the floor by bolts, washers and nuts in order to meet the performance requirements of FMVSS No. 222. Flange-head nuts may be used in lieu of nuts and washers. All seat frames attached to the seat rail shall be fastened with two or more bolts, washers and nuts, or with flange-head nuts. Seats may be track-mounted in conformance with FMVSS No. 222. 5. If track seating is installed, the manufacturer shall supply minimum and maximum seat spacing dimensions (applicable to the bus) which comply with FMVSS No. 222. This information shall be on a label permanently affixed to the bus. 6. All school buses (including Type A) shall be equipped with restraining barriers which conform to FMVSS No. 222. 7. A flip-up seat may be installed at any side emergency door. If provided, the flip-up seat shall conform to FMVSS No. 222 and aisle clearance requirements of FMVSS No. 217, <i>Bus Emergency Exits and Window Retention and Release</i>. The flip-up seat shall be free of sharp projections on the underside of the seat bottom. The underside of the flip-up seat bottoms shall be padded or contoured to reduce the possibility of clothing being snagged. Flip-up seats shall be constructed to prevent passenger limbs from becoming entrapped between the seat back and the seat cushion when the seat is in the upright position. The seat cushion shall be designed to rise to a vertical position automatically when it is not occupied. 8. Lap belts shall not be installed on passenger seats in large school buses (over 10,000 pounds GVWR) except in conjunction with child safety restraint systems that comply with the requirements of FMVSS No. 213, <i>Child Restraint Systems</i>.</p>	<p>X</p>

Product Category	Bus: Conventional	
SEATS AND RESTRAINING BARRIERS: B. PRE-SCHOOL AGE SEATING	B. Passenger seats designed to accommodate a child or infant acarrier seat shall comply with FMVSS No. 225, <i>Child Restraint Anchorage Systems</i> . These seats shall be in compliance with NHTSA's " <i>Guideline for the Safe Transportation of Pre-school Age Children in School Buses</i> ." Note A.8: Lap belts shall not be installed on passenger seats in large school buses (over 10,000 pounds GVWR) except in conjunction with child safety restraint systems that comply with the requirements of FMVSS No. 213, <i>Child Restraint Systems</i> .	X
SEATS AND RESTRAINING BARRIERS: C. DRIVER SEAT	C. 1. The driver's seat supplied by the body manufacturer shall be a high back seat. The seat back shall be adjustable to 15 degrees minimum, without requiring the use of tools. The seat shall be equipped with a head restraint to accommodate a 5th percentile female to a 95th percentile adult male, as defined in FMVSS No. 208, <i>Occupant Crash Protection</i> . 2.Type A buses may utilize the standard driver's seat provided by the chassis manufacturer.	X
SEATS AND RESTRAINING BARRIERS: D. DRIVER RESTRAINT SYSTEM	D. A Type 2 lap/shoulder belt shall be provided for the driver. On buses where the driver's seat and upper anchorage for the schoulder belt are both attached to the body structure, a driver's seat with an integrated Type 2 lap/shoulder belt may be substituted. On buses where the driver's seat and upper anchorage for the shoulder belt are separately attached to both body and chassis structures (i.e., one attached to the chassis and the other attached to the body), a driver's seat with an integrated Type 2 lap/shoulder belt should be used. The assembly shall be equipped with an emergency locking retractor for the continuous belt system. On all buses except Type A that are equipped with a standard chassis manufacturer's driver's seat, the lap portion of the belt system shall be guided or anchored to prevent the driver from sliding sideways under the belt system. The lap/shoulder belt shall be designed to allow for easy adjustment in order to fit properly and to effectively protect drivers varying in size from 5th percentile adult female to 95th percentil adult male. The belt may be of a high visibility contrasting color.	X
SEATS AND RESTRAINING BARRIERS: E. EACH BUS	E. Each bus shall be equipped with a durable webbing cutter having a full width handgrip and a protected, replacabel or non-corrodiable blade. The required webbing cutter shall be mounted in a location accessible to the seated driver in an easily detachable manner.	X
SEAT, DRIVER	The driver's seat supplied by the body manufacturer shall be a high back seat. The seat back shall be adjustable to 15 degrees minimum, without requiring the use of tools. The seat shall be equipped with a head restraint to accommodate a 5th percentile female to a 95th percentile adult male, as defined in FMVSS No. 208, <i>Occupant Crash Protection</i> . 2.Type A buses may utilize the standard driver's seat provided by the chassis manufacturer.	X
SEATS, FIRE BLOCK	Required	X
SEATS, PASSENGER: COLOR	Shall comply with National Standards.	X
SEAT BELT	NONE.	X
STORAGE POUCH KICK PANEL BARRIER	None (located behind driver on barrier)	X
KICK PANEL	One on right side	X
	Add additional left side front	X
SIDE SKIRT	School bus body side skirts between the front and rear axles shall extend down to within two inches plus or minus, of the horizontal line from the center of the front spindle to the center of the rear axle. The manufacturer may offer optional side skirt lengths that extend lower than this requirement. This measurment shall apply to a new unloaded school bus located on a flat, level surface.	X
STEP: DRIVER	Shall meet National Standards.	X

Product Category	Bus: Conventional	
STEPS	<p>A. The first step at the entrance door shall be not less than 10 inches and not more than 14 inches from the ground when measured from the top surface of the step to the ground, based on standard chassis specifications, except that on Type D vehicles, the first step at the entrance door shall be 12 inches to 16 inches from the ground. An auxiliary step may be provided to compensate for the increase in ground-to-first-step clearance. The auxiliary step is not required to be enclosed. B. Step risers shall not exceed a height of 10 inches. Note: When plywood is used on a steel floor or step, the riser height may be increased by the thickness of the plywood. C. Steps shall be enclosed to prevent accumulation of ice and snow. D. Steps shall not protrude beyond the side body line.</p>	X
STEP TREADS	<p>A. All steps, including the floor line platform area, shall be covered with an elastomer floor covering having a minimum overall thickness of 0.187 inch. B. The step covering shall be permanently bonded to a durable backing material that is resistant to corrosion. C. Steps, including the floor line platform area, shall have a 1-1/2 inch nosing that contrasts in color by at least 70 percent measured in accordance with the contrasting color specification in 36 CFR, Part 1192, ADA, <i>Accessibility Guidelines for Transportation Vehicles</i>. D. Step treads shall have the following characteristics: 1. Abrasion resistance: Step tread material weight loss shall not exceed 0.40 percent, as tested under ASTM D-4060, <i>Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser</i>, (CS-17 Wheel, 1000 gram, 1000 cycle.) 2. Weathering resistance: Step treads shall not break, crack, or check after ozone exposure (seven days at 50 ppm at 40 degrees C) and Weatherometer exposure (ASTM D-750, <i>Standard Test Method for Rubber Deterioration in Carbon-Arc Weathering Apparatus</i>, seven days). 3. Flame resistance: Step treads shall have a calculated burn rate of .01 mm per minute or less using the test methods, procedures, and formulas listed in FMVSS No. 302, <i>Flammability of Interior Materials</i>. Note: A spray on application type material may be used in lieu of item A. that meets the requirements of items B. through D. The material shall be applied not only to the interior surfaces of the service door step treads but also to the exterior, if not covered by undercoating. Manufacturers standard to match floor color.</p>	X
STEP TREADS	Add 2 steps with both pebble tread and heated step with ambient switch.	Refer to affirmative statement in H.K Truck Services, Inc response document
STEPWELL	Upgrade to stainless steel	Refer to affirmative statement in H.K Truck Services, Inc response document
	Marr Proof step risers	Refer to affirmative statement in H.K Truck Services, Inc response document
STEPWELL, GUARD		
STIRRUP STEPS	<p>If the windshield and lamps are not easily accessible from the ground, there may be at least one folding stirrup step or recessed foothold installed on each side of the body for easy accessibility for cleaning. There also may be a grab handle installed in conjunction with the step. Steps are permitted in or on the front bumper in lieu of the stirrup steps if the windshield and lamps are easily accessible for cleaning from that position.</p>	X



Product Category	Bus: Conventional	
STOP SIGNAL ARM	The stop signal arm(s) shall comply with the requirements of FMVSS No. 131, School Bus Pedestrian Safety Devices. MFSABs are exempt from these requirements. School bus markings lights; . . . Identifications. May be equipped with a system of stop arms to be operated only with the red signal lights. [29-A MRS Section 2302(1.G)]	X
STORAGE COMPARTMENT (OPTIONAL)	A storage container for tools, tire chins and/or other equipment may be located either inside or outside the passenger compartment. If inside, it shall be fastened to the floor and have a cover with a positive fastening device.	Refer to affirmative statement in H.K Truck Services, Inc response document
STUDENT REMINDER SYSTEM	Included. Manufacturer Standard to be triggered by warning lights	X
STUDENT REMINDER ACTIVATION	To be triggered by ignition.	X
SUN SHIELD	A. On Types B, C, and D vehicles, an interior adjustable transparent sun shield, with a finished edge and dimensions not less than 6x30 inches, shall be installed in a position convenient for use by the driver. B. On Type A buses, the sun shield (visor) shall be installed by the chassis manufacturer.	X
	Left side drivers window shade	Refer to affirmative statement in H.K Truck Services, Inc response document
TOWING ATTACHMENT POINTS	Front and/or rear towing devices (i.e., tow hooks, tow eyes, or other designated towing attachment points) shall be furnished to assist in the retrieval of buses that are stuck and/or for towing buses when a wrecker with a "wheel lift" or an "axle lift" is not available or cannot be applied to the towed vehicle. A. Towing devices shall be attached to the chassis frame either by the chassis manufacturer or in accordance with the chassis manufacturer's specifications. B. Each towing device shall have a strength rating of 13,500 pounds each, for a combined rating of 27,000 pounds with the force applied in the rearward direction, parallel to the ground, and parallel to the longitudinal axis of the chassis frame rail. For pulling and lifting purposes, tow hooks are meant to be used simultaneously. For pulling, angularity applied to the tow hooks will decrease the capacities of the tow hooks. C. The towing devices shall be mounted such that they do not project forward of the front bumper or rearward of the rear bumper. <u>NOTE: Type A buses are exempt from the requirement for front tow hooks or eyes due to built-in crush zones.</u>	X
TRACTION ASSISTING DEVICES (Optional)	A. Where required or used, sanders shall: 1. Be hopper cartridge-valve type; 2. Have a metal hopper with all interior surfaces treated to prevent condensation of moisture; 3. Have a least 100 pounds (grit) capacity; 4. Have a cover that screws in place on the filler opening of the hopper, thereby sealing the unit airtight; 5. Have discharge tubes extending under the fender wheelhousing to the front of each rear wheel; 6. Have non-clogging discharge tubes with slush-proof, non-freezing rubber nozzles; 7. Be operated by an electric switch with a pilot lamp mounted on the instrument panel located so as to be exclusively controlled by the driver; 8. Be equipped with a gauge to indicate that the hopper has reached the one-quarter level (and needs to be refilled); and 9. Be designed to prevent freezing of all activation components and moving parts. B. Automatic traction chains may be installed.	Refer to affirmative statement in H.K Truck Services, Inc response document
TRASH CONTAINER AND HOLDING DEVICE (OPTIONAL)	When requested or used, the trash container shall be secured by a holding device that is designed to prevent movement and to allow easy removal and replacement. It shall be installed in an accessible location in the driver's compartment, not obstructing passenger access to the entrance door.	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>UNDERCOATING</b>	A. The entire underside of the bus body, including floor sections, cross member and below floor-line side panels, shall be coated with rust-proofing material for which the material manufacturer has issued to the bus body manufacturer a notarized certification to the bus body manufacturer that materials meet or exceed all performance requirements of SAE J1959, Sept. 2003 Edition of the Standard. B. The undercoating material shall be applied with suitable airless or conventional spray equipment to the undercoating material manufacturer recommended film thickness and shall show no evidence of voids in the cured film. C. The undercoating material shall not cover any exhaust components of the chassis.	X
<b>VENTILATION</b>	A. Auxiliary Fan(s) shall meet the following requirements: B. Fan(s) shall be placed in a location where they can be adjusted for maximum effectiveness and where they do not obstruct the driver's vision to the mirrors or interfere with the safe operation of the vehicle. 1. Fans shall have six-inch (nominal) diameter. 2. Fan blades shall be enclosed in a protective cage. Each fan shall be controlled by a separate switch. C. The bus body shall be equipped with a suitably controlled ventilating system with capacity sufficient to maintain the proper quality of air flow under operating conditions without having to open a window except in extremely warm weather. D. Static-type, noncloseable exhaust ventilation shall be installed in a low-pressure area of the roof. E. Roof hatches designed to provide ventilation in all types of exterior weather conditions may be provided. Ventilation shall comply with National Standards.	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>WHEEL HOUSING</b>	A. The wheelhousing opening shall allow for easy tire removal and service. B. Wheel housings shall be attached to the floor panels in a manner to prevent any dust, water, or fumes from entering the body. Wheel housings shall be constructed of 16-gauge (or thicker) steel. C. The inside height of the wheel housings above the floor line shall not exceed 12 inches. D. The wheel housings shall provide clearance for installation and use of the chains on single or dual (if so equipped) power-driven wheels. E. No part of a raised wheelhousing shall extend into the emergency door opening.	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>WINDOW, STORM SASH, DRIVER</b>	None	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>WINDOW, STORM SASH, DRIVER SIDE</b>	None (not tinted)	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>WINDOW, STORM SASH, ENTRANCE DOOR</b>	None	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>WINDOW, STORM SASH, PASSENGER</b>	None (not tinted)	Refer to affirmative statement in H.K Truck Services, Inc response document
<b>WINDOW, REAR</b>	Manufacturer Standard	X
<b>WINDOWS</b>	A. Other than emergency exits designated to comply with FMVSS No. 217, Bus Emergency Exits and Window Retention and Release, each side window shall provide an unobstructed opening of at least nine inches high (but not more than 13 inches high) and at least 22 inches wide, obtained by lowering the window. One window on each side of the bus may be less than 22 inches wide. B. Optional tinted and/or frosted-free glazing may be installed in all doors and windows. Windshields shall comply with federal, state, and local regulations.	X
<b>WINDOWS: SIDE SASHES</b>	Shall comply with National Standards.	X
	Painted window side sashes black	X
<b>WINDOW: PILASTERS</b>	Paint pilasters black	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
	The largest windshield furnished by each body company be considered as standard equipment. This is to be a one piece to four piece windshield with shaded band at the top.	X
WINDSHIELD	2-piece curved	Refer to affirmative statement in H.K Truck Services, Inc response document
WINDSHIELD WASHERS	Windshield washer system shall be provided.	X
WINDSHEILD WIPERS	A. A two-speed or variable speed windshield wiping system, with an intermittent feature, shall be provided and shall be operated by a single switch. B. The wipers shall meet the requirements of FMVSS No. 104, <i>Windshield Wiping and Washing Systems</i> .	X
WIPER BLADES	None	X
WIPER BLADES, HEATED	Heated wiper blades	Refer to affirmative statement in H.K Truck Services, Inc response document
WHEELCHAIR ENTRY	None; If selected option the lift shall be a Braun and include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Includes the deduct for the 2 seats in the lift area.	X
	Front lift door w/Braun. If selected option shall include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Should also include the deduct for the 2 seats in the lift area.	Refer to affirmative statement in H.K Truck Services, Inc response document
	Midship lift door w/Braun. If selected option shall include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Should also include the deduct for the 2 seats in the lift area.	Refer to affirmative statement in H.K Truck Services, Inc response document
	Rear lift door w/Braun. If selected option shall include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Should also include the deduct for the 2 seats in the lift area.	X
WHEELCHAIR ENTRY ALT. BRANDS	None; If selected option the lift shall include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Includes the deduct for the 2 seats in the lift area.	X
LIFT DOOR	Shall comply with National Standards.	X
	Lock on lift door	X
EXTERIOR LIFT LIGHTS	Shall comply with National Standards	X
	Additional Exterior lift lights	X
INTERIOR LIFT LIGHTS	Shall comply with National Standards	X
	Additional interior lift lights	Refer to affirmative statement in H.K Truck Services, Inc response document
FLAT FLOOR PACKAGE (NO SECUREMENTS)	None; If selected to include all body and chassis equipment needed for flat floor. Contact Dealer before selecting this option.	Refer to affirmative statement in H.K Truck Services, Inc response document
	Add flat floor package. If selected to include all body and chasis equipment needed for flat floor.	Refer to affirmative statement in H.K Truck Services, Inc response document
FLOOR TRACKING SYSTEM (NO SECUREMENTS)	None	X
WHEELCHAIR SECUREMENTS (L-TRACK)	None	X
WHEELCHAIR LOCATION	None	X
WHEELCHAIR SEC. STORAGE POUCH	A device for storage of the Wheelchair Tie Down & Occupant Restraint System (WTORS) Storage Compartment SHALL BE PROVIDED. Shall comply with National Standard. Not required on standard bus.	X
EVAC-AID	None	X
	Add evac-aid fire blankets (quantity)	Refer to affirmative statement in H.K Truck Services, Inc response document
FIRE BLANKET	None	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
	Add fire blankets (state quantity)	Refer to affirmative statement in H.K Truck Services, Inc response document
RADIO 2-WAY	None	X
RADIO 2-WAY: PREWIRE FOR 2-WAY RADIO	None	X
SECURITY & GPS: PREWIRE FOR SECURITY & GPS SYSTEMS	None	X
SURVEILLANCE CAMERA SYSTEM (inside the bus)	The following regulation is in addition to the National School Transportation Specifications and Procedures 2015: Onboard video systems (also known as surveillance cameras) with a minimum of four (4) cameras and continuous recording shall be installed on the inside of all new school buses. [Code of Maine Regulations (05-071 CMR Chapt. 86) Maine Uniform School Bus Specifications] <b>Note: school districts select the type of surveillance camera system.</b> Contact Dealer for hardware availability and pricing. Pricing for labor and pre-wire is listed below.	X
SURVEILLANCE CAMERA SYSTEM (inside the bus)	Labor to install four-camera system	X
SURVEILLANCE CAMERA SYSTEM - GPS	None	X
SURVEILLANCE CAMERA - STOP ARM CAMERA	None. Contact dealer for pricing.	X
SURVEILLANCE CAMERA - MONITOR LIGHTS	None	X
	Add camera monitor for lights	X
SURVEILLANCE CAMERA - MONITOR SEAT BELT	None	X
	Add camera monitor for seat belt	X
	None	X
<b>SPECIALY EQUIPPED SCHOOL BUS SPECIFICATIONS</b>		
DEFINITION	A specially equipped school bus is any school bus that is designed, equipped and/or modified to accommodate students with special transportation needs.	X
GENERAL REQUIREMENTS: A	A. Specially equipped school buses shall comply with the <i>National School Transportation Specifications and Procedures</i> and with the Federal Motor Vehicle Safety Standards (FMVSSs) applicable to their Gross Vehicle Weight Rating (GVWR) category.	X
GENERAL REQUIREMENTS: B	B. Any school bus to be used for the transportation of children who utilize a wheelchair or other mobile positioning device, or who require life-support equipment that prohibits use of the regular service entrance, shall be equipped with a power lift.	X
AISLES	All school buses equipped with a power lift shall provide a minimum 30-inch pathway leading from any wheelchair position to at least one 30 inches wide emergency exit door. A wheel chair securement position shall never be located directly in front of (blocking) a powerlift door location.	X
GLAZING	Tinted glazing may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations.	X
IDENTIFICATION	Specially equipped school buses shall display the International Symbol of Accessibility below the window line. Such emblems shall be white or blue or black background, shall not exceed 12 inches square in size and shall be of a high-intensity retroreflective material meeting the requirements of Federal Highway Administration (FHWA) FP-85, <i>Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects</i> .	X

<b>Product Category</b>	<b>Bus: Conventional</b>	
<b>PASSENGER CAPACITY RATING</b>	In determining the passenger capacity of a school bus for purposes other than actual passenger load (e.g., vehicle classification or various billing/reimbursement models), any location in a school bus intended for securement of a wheelchair during vehicle operation shall be regarded as four designated seating positions, and each lift area shall count as four designated seating positions.	X
<b>POWER LIFTS</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>REGULAR SERVICE ENTRANCE</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>RESTRAINING DEVICES</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>SEATING ARRANGEMENTS</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>SECUREMENT AND RESTRAINT SYSTEM FOR WHEELCHAIRS AND WHEELCHAIR-SEATED OCCUPANTS</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>SPECIAL LIGHT</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>SPECIAL SERVICE ENTRANCE</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>SPECIAL SERVICE ENTRANCE DOORS</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>SUPPORT EQUIPMENT AND ACCESSORIES</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X
<b>TECHNOLOGY AND EQUIPMENT, NEW</b>	Refer to National School Transportatin Specifications and Procedures 2015.	X

# H.K. TRUCK CENTER

 **LION ELECTRIC**



## LIONC

All-Electric Type C  
School Bus

**The State of Maine Division of Procurement  
Services ("Division") acting on behalf of the  
Department of Education (" Requesting  
Department")**

**RFQ #05A 230327-236, School Bus, All Fuel  
Types**

**H.K Truck Service, Inc Response**

The bright move.



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## EXECUTIVE SUMMARY

H.K Truck Service, Inc (H.K) as the official dealer for The Lion Electric Co. USA Inc (Lion), in the State of Maine, we are happy to present the Lion vehicles and experience to the State of Maine, for the purposes of the School Bus Contract. We appreciate the opportunity to submit a response to RFQ #05A 230327-236, School Bus, All Fuel Types and are excited at the prospect of working with the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department") as you continue your transition to a zero-emission fleet.

Founded in 2008, Lion is the leading purpose-built, zero-emission medium and heavy-duty electric vehicle manufacturer in North America. With over 950 electric buses on the road today, proven range of up to miles on a single charge, and its ability to manufacture up to 2,500 electric vehicles annually, Lion stands out as the leader in the zero-emission commercial vehicle industry. Our technology is proven: our buses can meet the range needs of the majority of American school bus routes. Lion is capable of immediately supporting the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department")'s electrification requirements with its team of experts who have unparalleled experience in electric bus deployments. Over a decade of knowledge, performance, and innovation have culminated in our dominance of this industry in which many other medium- and heavy-duty vehicle manufacturers are just now taking their first steps into the electric arena.

Lion understands that the zero-emission journey is about more than just the vehicle. Fleets need not only a manufacturer, but a partner who can provide a complete, turnkey solution that will ensure their successful transition to an electric fleet. Lion is that partner:

- ✓ Driving the charging infrastructure solution with Lion**Energy**
- ✓ Educating and training with the Lion **Customer Success Team**
- ✓ Tracking and reporting vehicle telematics with Lion**Beat**
- ✓ Lighting the way to an excellent customer service experience with the Bright**Squad**

With over 1,400 individuals employed across North America, including approximately 300 in engineering and R&D alone, Lion's workforce specializes exclusively in zero-emission vehicle applications, making Lion one of the few OEMs to dedicate its production to purpose-built all-electric vehicles only.

### THE LEADER IN THE BATTERY ELECTRIC ARENA WITH THE MOST EXPERIENCE IN THE INDUSTRY

Because Lion school buses are deployed throughout North America, we are one of the only electric vehicle manufacturers that can confidently say that we have not experienced battery failure in any extreme weather conditions. From extremely cold climates (such as Quebec, Minnesota, and Massachusetts) to extremely hot (such as the Central Valley of California), Lion has only experienced up to 1% battery degradation yearly.

Lion would not have been able to achieve such an impressive deployment territory without having an aggressive delivery record. Lion has one of the fastest delivery timelines in the industry. Over the past decade, we have built a team of experts in the all-electric vehicle industry who have unparalleled skills and knowledge, and they have made it possible for Lion to meet delivery deadlines and dominate the electric school bus market in North America. Each of our employees has experience in fleet electrification and brings unique talent in their respective field of expertise. The Lion team is ready to work with the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department") to deploy zero-emission school buses that meet your specific fleet requirements.





With a growing portfolio of deployments, Lion has invested significant time and resources into expanding its manufacturing capacity to meet rising demand. The original Lion factory, established in Saint-Jérôme, Quebec, is capable of manufacturing up to 2,500 all-electric medium- and heavy-duty vehicles each year. Scaling up production and expanding its manufacturing into the United States, Lion has acquired a 900,000 sq ft factory in Joliet, Illinois, that will be capable of manufacturing up to 20,000 all-electric medium- and heavy-duty vehicles each year. Lion will be manufacturing vehicles in both Canada and the US at the same time. This will allow us to comply with local, state or provincial, and federal laws and regulations in both Canada and the US simultaneously, such as Buy America provisions and equivalent Canadian policies. Lion also has a battery factory in Mirabel, Quebec, which will allow it to manufacture its own batteries and take greater control over the supply chain for its vehicles' most critical component.

From its very first vehicle, Lion has developed zero-emission vehicles based on direct end-user feedback, including optimizing visibility and reducing turning radius to ensure rapid adoption from drivers. Our vehicle technology has been tested and proven in real-world applications for over 6 years, with hundreds of our electric school buses having been deployed for several years now. We have collected battery data from all our vehicles ever since the first one was delivered, and with this unmatched experience, have developed an expertise with zero-emission vehicles that cannot be equaled. Our leadership in this industry stands out because Lion is one of only a few OEMs that does not offer a retrofit solution, converting diesel buses and chassis into electric buses. Our school buses are purpose-built to be electric, designed and manufactured from the ground-up to maximize efficiency and compatibility with a zero-emission powertrain.

Since Lion vehicles are purpose-built to be electric, our bus components require very little maintenance, thus reducing total cost of ownership for fleets. Because there are fewer moving parts and no fluids on our electric vehicles, the cost to maintain and service them is much less than that of an internal combustion vehicle. All Lion vehicles also feature regenerative braking, which reduces the frequency at which the brakes must be replaced, further minimizing our vehicles' total cost of ownership. Lion represents the best return on investment for the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education ("Requesting Department").

In addition to providing operational and economic benefits, our zero-emission vehicles also eliminate criteria pollutant and greenhouse gas emissions in American communities. This creates a cleaner, healthier, and safer environment for students, drivers, and the communities in which these buses operate every day. Above all, Lion values safety, reliability, and the health of the communities in which we serve and live. In addition to this, Lion has gone above and beyond to fight for everyone's right to breathe clean air. Lion continues to influence policies on vehicle electrification and supports local, state, and federal efforts to accelerate the adoption of clean transportation technologies. Our end-users have always been the focus of our manufacturing policy, but when it comes to protecting children's health, Lion has decided to take the lead and support efforts to educate legislators, agencies, fleet operators, and the public at large about the benefits of zero-emission transportation.

- ✓ Lion joined discussions with Sierra Club, a national and grassroots non-profit organization committed to protecting the environment, to identify the most effective methods to promote electric vehicles: through legislators' proposed policies and agendas, their plans to eliminate criteria pollutant and greenhouse gas emissions in their communities, and to leverage available funding opportunities to reduce the upfront cost of electric vehicles to fleets.
- ✓ To raise awareness about electric vehicles, a Lion vehicle was the first electric bus to compete in school bus "rodeos."
- ✓ Due to Lion's consistent leadership on issues involving greenhouse gas emission reduction and electrification of the student transportation industry, the Center for Transportation and the



Environment featured key members of the Lion team in an article on women in the clean transportation sector.

As the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department") can see, Lion is equipped with the experience, resources, staff, and knowledge to meet and exceed all your electrification needs. We have a proven record of deployment success where other OEMs are still in the prototype phase. Lion has the advantage of being well-positioned today to significantly grow its market share in the great State of Maine in both the short- and long-term.

One of the most impactful actions a fleet can take to reduce its carbon footprint is to begin its transition to electric. By purchasing Lion zero-emission school buses and integrating them into your everyday routes, State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department") will continue to be a leader in sustainability, protecting the environment for future generations and improving air quality in communities across Maine. In the 21<sup>st</sup> century, now more than ever it has become critical to demonstrate social responsibility as growing concerns over climate change begin to permeate all aspects of everyday life. The State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department") has the chance now to help contribute to a healthier, safer, and more breathable future for all by choosing Lion as its partner on its zero-emission journey.

#### **In Summary:**

**Global Leader in Deploying Electric Vehicles** • Lion has already deployed over 950 zero-emission vehicles that have collectively accumulated more than 10 million miles/16 million kilometers of service and recorded data. We are in a unique position to have years of operating data and a history of advancing our electric vehicles.

**Turnkey Solution** • Lion is not just an electric commercial vehicle manufacturer. Lion is the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department")'s partner throughout your entire journey to zero-emissions, singularly capable of providing a complete turnkey solution. Our Lion**Energy** team can provide start-to-finish infrastructure support to help fleets navigate the complex process of deploying charging stations. The Lion **Customer Success Team** will train the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department")'s fleet mechanics and technicians on the basics of EV maintenance and service to create a knowledgeable customer base that is comfortable working on electric vehicles. When data and reports need to be generated and shared, the Lion**Beat** can simplify the process with real-time vehicle tracking and monitoring. And there to support your fleet throughout the entire lifetime of your Lion vehicles is the Bright**Squad**, ready to provide remote or in-person service and technical expertise at any moment.

**Annual Production Capacity of 2500 Vehicles and Growing** • As demand has increased for our electric vehicles throughout the years, we have scaled our manufacturing capacity to be able to accommodate this growing need. Our factory in Joliet, Illinois, will increase our overall manufacturing capacity by 20,000 electric vehicles-per-annum at full scale, while our battery assembly facility in Mirabel, Quebec, will grant us greater control over our battery supply chain, an advantage few other OEMs enjoy.

**Innovation** • Lion has perfected its electric school bus design over years of end-user feedback and collected data. Our zero-emission buses have innovative technological features and components that make them among the highest quality electric vehicles on the market today.

**Driven to Make a Difference** • Lion believes that protecting the environment and children's health are critical to creating a sustainable, healthy, safe future in which everyone has an equal opportunity to thrive.



Lion's motivation as a company is to make a difference in communities by providing clean transportation for the most vulnerable citizens, children.

**Born to be Electric** • Our school buses are not retrofitted diesel vehicles. They are born to be electric.

**Committed to Fast Deliveries** • Lion has one of the fastest delivery timelines of zero-emission medium- and heavy-duty vehicles in the industry.

H.K and Lion would like to thank the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department") for the opportunity to submit its response to RFQ #05A 230327-236, School Bus, All Fuel Types. We believe H.K and Lion's core values align closely with the State of Maine Division of Procurement Services ("Division") acting on behalf of the Department of Education (" Requesting Department")'s vision and look forward to the chance to work with the State of Maine school administrative districts to deliver high-quality electric school buses on time with robust service and training.



Sincerely,

A handwritten signature in blue ink, appearing to read "Henry Knabe III", written over a horizontal line.

Henry Knabe III— General Manager, H.K Truck Services, Inc



## AFFIRMATIVE STATEMENT

H.K Truck Services, Inc and The Lion Electric Co. USA Inc confirm that our bid and response comply with all requirements of this RFQ unless specifically addressed below:

### *Chassis Options*

- **Air Cleaner - A.** A dry element air cleaner shall be provided. **B.** All diesel engine air filters shall include a latch-type restriction indicator that retains the maximum restriction developed during operation of the engine. The indicator should include a reset control so the indicator can be returned to zero when desired.
  - ✓ There is no air intake on electric school buses and thus this specification is not applicable to our submission.
- **Brakes: general. F - F.** The power-operated parking brake system may be interlocked to the engine key switch. Once the parking brake has been set and the ignition switch turned to the "off" position, the parking brake cannot be released until the key switch is turned back to the "on" position.
  - ✓ The LionC parking brake system is not interlocked with the engine key switch. The specification above mentions that the power-operated parking brake maybe be interlocked and thus is not mandatory.
- **Brakes: Air. B. - B.** The chassis manufacturer shall provide an accessory outlet for air-operated systems installed by the body manufacturer. This outlet shall include a pressure protection valve to prevent loss of air pressure in the service brake reservoir.
  - ✓ This option is commonly offered on trucks but not on all-electric school buses.
- **Electrical System: B. Alternator - B.** 1. All type A and Type B buses with a GVWR of 15,000 pounds or less shall have a minimum 130-amp alternator. Buses equipped with an electrically powered wheelchair lift and/or air conditioning shall be equipped with the highest rated capacity available from the chassis OEM. 2. All buses over 15,000 pounds GVWR shall be equipped with a heavy-duty truck-or-bus-type alternator having a minimum output rating of 200 amps or higher and should produce a minimum current output of 50 percent of the rating at engine idle speed. 3. All other buses than those described in B1 equipped with an electrically powered wheelchair lift and/or air conditioning shall have a minimum alternator output of 240 amps and may be equipped with a device that advances the engine idle speed when the voltage drops to, or below, a pre-set level. 4. A belt-driven alternator shall be capable of handling the rated capacity of the alternator with no detrimental effect on any other driven components. (For estimating required alternator capacity, see School Bus Manufacturers Technical Council's publication, "School Bus Technical Reference," available at <http://www.nasdpts.org>) 5. A direct/gear-drive alternator is permissible in lieu of a belt-driven alternator.
  - ✓ There is no alternator on an electric school bus and thus this specification is not applicable to our submission.
- **Exhaust system: G - G.** For after treatment systems that require Diesel Exhaust Fluid (DEF) to meet federally mandated emissions: 1. The composition of Diesel Exhaust Fluid (DEF) must comply with International Standard ISO 22241-1. Refer to engine manufacturer for any additional DEF requirements. 2. The DEF supply tank shall be sized to meet a minimum ratio of 3 diesel fills to 1 DEF fill.



- ✓ There is no exhaust system on an electric school bus and thus this specification is not applicable to our submission.
- **Fire Suppression Systems (optional) - A.** The chassis manufacturer may provide an automatic fire extinguisher system in the engine compartment. B. Fire suppression system nozzles shall be located in the engine compartment, under the bus, in the electrical panel or under the dash, but they shall not be located in the passenger compartment. The system must include a lamp or buzzer to alert the driver that the system has been activate.
  - ✓ There is no conventional engine in an electric school bus and thus this specification is not applicable to our submission.
- **Fuel System: F: Liquefied Petroleum Gas (LPG) - F.** Installation of Liquefied Petroleum Gas (LPG) tanks shall comply with National Fire Protection Association (NFPA) 58, Liquefied Petroleum Gas Code.
  - ✓ Not applicable to our submission.
- **Fuel System: G-H. Compressed Natural Gas (CNG) - G.** Installation of Compressed Natural Gas (CNG) containers shall comply with FMVSS No. 304, Compressed Natural Gas Fuel Container Integrity. H. The CNG Fuel System shall comply with FMVSS No. 303, Fuel System Integrity of Compressed Natural Gas Vehicles.
  - ✓ Not applicable to our submission.
- **Governor -** An electronic engine speed limiter shall be provided and set to limit engine speed, not to exceed the maximum revolutions per minute, as recommended by the engine manufacturer.
  - ✓ There is no governor because there is no conventional engine in an electric school bus. The LionC, however, has a top speed limited to 60 mph.
- **Heating system, provision for -** The engine shall be capable of supplying coolant at a temperature of at least 170 degrees Fahrenheit at the engine coolant thermostat opening. The coolant flow rate shall be 50 pounds per minute at the return end of 30 feet of one (1) inch inside diameter automotive hot water heater hose. (See SBMTC-001, Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment.)
  - ✓ There is no conventional engine in an electric school bus and thus there is no coolant. This specification is not applicable to our submission.
- **Instruments and Instrument panel: A - A.** The chassis shall be equipped with the instruments and gauges listed here. Note: Telltale warning lamps in lieu of gauges are not acceptable, except as noted. 1. Speedometer; 2. Odometer that can be read without using a key and that will give accrued mileage (to seven digits), including tenths of miles, unless tenths of miles are registered on a trip odometer; 3. Tachometer; Note: for types B, C, and D buses, a tachometer shall be installed so as to be visible to the driver while seated in a normal driving position. 4. Voltmeter; Note: An ammeter with graduated charge and discharge indications is permitted in lieu of a voltmeter; however, when used, the ammeter wiring must be compatible with the current flow of the system. 5. Oil pressure gauge; 6. Water temperature gauge; 7. Fuel gauge; 8. High beam headlamp indicator; 9. Brake air pressure gauge (air brakes), brake indicator lamp (vacuum/hydraulic brakes), or brake indicator lamp (hydraulic/hydraulic); 10. Turn signal indicator; and 11. Glow-plug indicator lamp, where appropriate.
  - ✓ The LionC chassis is equipped with the following instruments: speedometer, odometer, voltmeter, water temperature gauge, fuel gauge (electric), high beam headlamp indicator,



brake air pressure gauge (air brakes), brake indicator lamp (vacuum/hydraulic brakes), or brake indicator lamp (hydraulic/hydraulic, turn signal indicator, glow-plug indicator lamp). Please note that the tachometer and oil pressure gauge are not offered on an electric bus.

- **Oil Filter** - An oil filter with a replaceable element shall be provided and connected by flexible oil lines if it is not a built-in or an engine-mounted design. The oil filter shall have a capacity in accordance with the engine manufacturer's recommendation.
  - ✓ There is no oil filter in an electric school bus and thus this specification is not applicable to our submission.
- **Retarder System (optional equipment)** - A retarder system, if used, shall limit the speed of a fully loaded school bus to 19.0 mph on a 7% grade for 3.6 miles.
  - ✓ A retarder system is commonly offered on a diesel power engine and is therefore not applicable to an electric school bus. Regenerative braking in electric school bus works in similar fashion and is standard on all Lion electric vehicles.
- **Road Speed Control** - When it is desired to accurately control vehicle maximum speed, a vehicle speed limiter may be utilized.
  - ✓ It is possible for the operator to program a maximum top speed at which the LionC can operate.
- **Shutters** – None
  - ✓ Shutters are not included on the LionC.
- **Steering Gear** - A. The steering gear shall be approved by the chassis manufacturer and designed to ensure safe and accurate performance when the vehicle is operated with maximum load and at maximum speed. B. If external adjustments are required, the steering mechanism shall be accessible to make adjustments. C. Changes shall not be made to the steering apparatus which are not approved by the chassis manufacturer. D. There shall be a clearance of at least two inches between the steering wheel and cowl, instrument panel, windshield or any other surface. E. Power steering is required and shall be of the integral type with integral valves. F. The steering system shall be designed to provide a means for lubrication of all wear points that are not permanently lubricated.
  - ✓ Electric School buses do not have a steering gear and thus this specification is not applicable to our submission.
- **Transmission, Automatic** - A. Automatic transmissions shall have no fewer than three forward speeds and one reverse speed. Mechanical shift selectors shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering column mounted. B. Automatic transmissions shall have a transmission shifter interlock controlled by the application of the service brake to prohibit accidental engagement of the transmission. PTS2500 Shall comply with National Standards. PTS2500 5-speed is standard specification.
  - ✓ The LionC has a direct-drive transmission and thus this specification is not applicable to our submission.



### *Body Options*

- **Crossing control arm G, H, I - G.** The crossing control arm shall extend simultaneously with the stop signal arm(s), activated by stop signal arm controls. H. An automatic recycling interrupt switch may be installed for temporarily disabling the crossing control arm. I. The assembly shall include a device attached to the bumper near the end of the arm to automatically retain the arm while in the stowed position. That device shall not interfere with normal operations of the crossing control arm.
  - ✓ Although the LionC has two different switches to activate the stop signal and the crossing arm, they can be activated at the same time to allow the crossing control arm to extend simultaneously with the stop signal arm.
- **Emergency Equipment: E. - E.** Any piece of emergency equipment may be mounted in an enclosed compartment, provided the compartment is labeled in not less than one-inch letters, identifying each piece of equipment contained therein.
  - ✓ The emergency equipment is located in the entrance area and behind the driver's seat.
- **Heating system, provision for -** The engine shall be capable of supplying coolant at a temperature of at least 170 degrees Fahrenheit at the engine coolant thermostat opening. The coolant flow rate shall be 50 pounds per minute at the return end of 30 feet of one (1) inch inside diameter automotive hot water heater hose. (See SBMTC-001, Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment.)
  - ✓ There is no conventional engine on an electric school bus and thus this specification is not applicable to our submission.
- **Illuminated School Bus Sign Front and Rear -** Illuminated school bus sign front and rear.
  - ✓ Our LionC does not have an illuminated school bus sign in the front and the rear. We are currently working on developing this specification.
- **Interior: B. Overhead Storage Compartments - B.** Interior overhead storage compartments may be provided if they meet the following criteria: 1. Head protection requirements of FMVSS No. 222, School Bus Passenger Seating and Crash Protection, where applicable; 2. Be completely enclosed and equipped with latching door (both door and latch sufficient to withstand a pushing force of 50 pounds applied at the inside center of the door); 3. Have all corners and edges rounded with a minimum radius of one (1) inch or be padded equivalent to door header padding; 4. Be attached to the bus sufficiently to withstand a force equal to 20 times the maximum rated capacity of the compartment; and 5. Have no protrusions greater than 1/4 inch.
  - ✓ We can offer an interior frame rack made of steel tubing above the passengers on both sides of the vehicle.
- **Light, Monitor, Exterior Lights -** Light monitor system not LED.
  - ✓ The LionC LED lights are standard and thus Lion is not offering this option.
- **Light, Landing -** Next to entrance door, outside skirt mounted.
  - ✓ The LionC does not have a light next to the entrance door mounted on the outside skirt. As an equivalent, we can offer a light mounted over the entrance door.



- **Light, Landing** - Outside under step mounted.
  - ✓ This specification is not offered on the LionC.
- **Light, Strobe** - Add Brush guard.
  - ✓ This specification is not offered on the LionC.
- **Lights** - Change 8 way to strobing LED.
  - ✓ This specification is not offered on the LionC.
- **Light, Emergency Door** - Add light over emergency door. One light at the rear over the emergency door shall come on when the marker lights are on. This light shall be red overhead light and wiring shall comply with eight light system.
  - ✓ This specification is not offered on the LionC.
- **Light, Interior** - One switch to operate dome light over drivers' compartment, one switch for dome lights in mid-section of bus, and one switch to operate the last two dome lights in the rear of the bus. The landing light shall be activated when the door opening mechanism is initiated.
  - ✓ The LionC has one switch to operate all the dome lights in the school bus.
- **Light, Interior** - Add medium dome lights.
  - ✓ This specification is not offered on the LionC.
- **Lights: Interior Driver Dome** – Delete Drivers dome
  - ✓ This specification is not offered on the LionC.
- **Lights tail turn flush mount** - Stop tail 4" flush mount incandescent.
  - ✓ LED lights are standard on the LionC. This specification is not offered on the LionC.
- **Light visors** - Dual light visors for warning lights.
  - ✓ This specification is not offered on the LionC.
- **Mud Flaps** - 2 front and full width rear attached appropriately and made of rubber material.
  - ✓ Front mud flaps are not necessary on the LionC due to the design of the vehicle. The front of vehicle acts as a mud flap by dropping low behind the front wheels.
- **Noise Reduction System** - Acoustical headliner full length of bus. Include 1/2" sound abatement package in floor and firewall.
  - ✓ Electric buses do not require a full-length acoustic headliner, due to the lack of engine, the buses are much quieter. Thus, the acoustic headliner on the LionC is from the rear of the bus up to the front barrier.
- **Noise reduction firewall** – Included.
  - ✓ The noise reduction firewall is not necessary on an electric school bus and thus not





applicable to our submission.

- **Outside Luggage Storage** - Maximum available. If the outside luggage is deleted the body side skirts between the front and rear axles shall extend down to within two inches plus or minus, of the horizontal line from the center of the front spindle to the center of the rear axle. The manufacturer may offer optional side skirt lengths that extend lower than this requirement. This measurement shall apply to a new unloaded school bus located on a flat, level surface. See also Panels, Exterior
  - ✓ This specification is not offered on the LionC due to lack of space.
- **Outside Luggage Storage** - Add lights in storage units
  - ✓ Outside luggage storage specification is not offered on the LionC.
- **Outside Luggage Storage** - Add lock for storage units
  - ✓ Outside luggage storage specification is not offered on the LionC.
- **Outside Luggage Storage** - Add lights & locks for storage units
  - ✓ Outside luggage storage specification is not offered on the LionC.
- **Paneling, Exterior Reeded** - Add reeded sides.
  - ✓ Our LionC has fiberglass exterior panels, and thus this specification is not applicable for our submission.
- **Panel, Shoulder Pad** - Full bus length.
  - ✓ Our LionC has fiberglass exterior panels, and thus this specification is not applicable for our submission.
- **Roof vent, static** - Delete static roof vent. If static vent is deleted the front roof hatch must contain a static vent per National Standards.
  - ✓ This specification is not offered on the LionC.
- **Roof Vent, Power** - Power roof vent (state quantity)
  - ✓ Specification not offered on the LionC. The specification under development for future electric school buses.
- **Step Treads** - Add 2 steps with both pebble tread and heated step with ambient switch.
  - ✓ We offer two (2) steps with pebble tread, but they are not heated and do not have an ambient switch.
- **Stepwell** - Upgrade to stainless steel
  - ✓ The stepwell on the LionC is a composite material.
- **Stepwell** - Marr Proof Step Risers
  - ✓ Our stepwell is made of composite.



- **Storage compartment (optional)** - A storage container for tools, tire chains and/or other equipment may be located either inside or outside the passenger compartment. If inside, it shall be fastened to the floor and have a cover with a positive fastening device.
  - ✓ This specification is not offered on the LionC.
- **Sun shield** - Left side driver's window shade
  - ✓ This specification is not offered on the LionC.
- **Traction assisting devices (optional)** - A. Where required or used, sanders shall: 1. Be hopper cartridge-valve type; 2. Have a metal hopper with all interior surfaces treated to prevent condensation of moisture; 3. Have a least 100 pounds (grit) capacity; 4. Have a cover that screws in place on the filler opening of the hopper, thereby sealing the unit airtight; 5. Have discharge tubes extending under the fender wheel housing to the front of each rear wheel; 6. Have non-clogging discharge tubes with slush-proof, non-freezing rubber nozzles; 7. Be operated by an electric switch with a pilot lamp mounted on the instrument panel located so as to be exclusively controlled by the driver; 8. Be equipped with a gauge to indicate that the hopper has reached the one-quarter level (and needs to be refilled); and 9. Be designed to prevent freezing of all activation components and moving parts. B. Automatic traction chains may be installed.
  - ✓ This specification is not offered on the LionC.
- **Ventilation** - A. Auxiliary Fan(s) shall meet the following requirements: B. Fan(s) shall be placed in a location where they can be adjusted for maximum effectiveness and where they do not obstruct the driver's vision to the mirrors or interfere with the safe operation of the vehicle. 1. Fans shall have six-inch (nominal) diameter. 2. Fan blades shall be enclosed in a protective cage. Each fan shall be controlled by a separate switch. C. The bus body shall be equipped with a suitably controlled ventilating system with capacity sufficient to maintain the proper quality of air flow under operating conditions without having to open a window except in extremely warm weather. D. Static-type, non-closeable exhaust ventilation shall be installed in a low-pressure area of the roof. E. Roof hatches designed to provide ventilation in all types of exterior weather conditions may be provided. Ventilation shall comply with National Standards.
  - ✓ The LionC complies with the requirement, however our roof hatches are not designed to provide ventilation.
- **Wheel Housing** - A. The wheel housing opening shall allow for easy tire removal and service. B. Wheel housings shall be attached to the floor panels in a manner to prevent any dust, water, or fumes from entering the body. Wheel housings shall be constructed of 16-gauge (or thicker) steel. C. The inside height of the wheel housings above the floor line shall not exceed 12 inches. D. The wheel housings shall provide clearance for installation and use of the chains on single or dual (if so equipped) power-driven wheels. E. No part of a raised wheel housing shall extend into the emergency door opening.
  - ✓ The LionC wheel housings are made of polymer and are compliant with all the other requirements.
- **Window, Storm Sash, Driver** – None.
  - ✓ The LionC is equipped with Thermos windows that are equivalent to Storm Sash window.
- **Window, Storm Sash, Driver Side** – None (not tinted)



- ✓ The LionC is equipped with Thermos windows 26% tinted that are equivalent to Storm Sash window.
- **Window, Storm Sash, Entrance Door** - None
  - ✓ The LionC is equipped with Thermos windows that are equivalent to Storm Sash window.
- **Window, Storm Sash, Passenger** – None (not tinted)
  - ✓ The LionC is equipped with Thermos windows 26% tinted that are equivalent to Storm Sash window.
- **Windshield** - 2-piece curved.
  - ✓ Lion has chosen to design the LionC with a one-piece windshield to provide better visibility to the driver.
- **Wiper blades heated** - Heated wiper blades.
  - ✓ This specification is not offered on the LionC.
- **Wheelchair entry** - Front lift door w/Braun. If selected option shall include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Should also include the deduct for the 2 seats in the lift area.
  - ✓ This specification is not offered on the LionC. The lift on the LionC is located near the rear axle.
- **Wheelchair entry** - Midship lift door w/Braun. If selected option shall include a lift door, lift required lights and brake/lift interlocks to meet National Standards. Should also include the deduct for the 2 seats in the lift area.
  - ✓ This specification is not offered on the LionC. The lift on the LionC is located near the rear axle.
- **Interior lift lights** - Additional interior lift lights
  - ✓ This specification is not offered on the LionC.
- **Flat floor package (no securements)** - None; If selected to include all body and chassis equipment needed for flat floor. Contact Dealer before selecting this option.
  - ✓ This specification is not offered on the LionC.
- **Flat floor package (no securements)** - Add flat floor package. If selected to include all body and chassis equipment needed for flat floor.
  - ✓ This specification is not offered on the LionC.
- **Evac-Aid** - Add evac-aid fire blankets (quantity).
  - ✓ This specification is not offered on the LionC.
- **Fire blanket** - Add fire blankets (state quantity)



- ✓ This specification is not offered on the LionC.



## INNOVATION

Each Lion zero-emission school bus is a technological advancement. We constantly seek out new, innovative, state-of-the-art developments to continuously improve our all-electric vehicles. Our school buses stand out in the market today as uniquely adapted to their end-users and their everyday needs. Lion strongly believes that transitioning to zero-emission vehicles will allow us to achieve major improvements in our society, environment, and overall quality of life. This belief drives us to continue our ceaseless efforts to perfect the all-electric school bus, starting with its components, such as the battery packs and motor.

Lion is committed to leveraging only the most innovative batteries for its zero-emission school buses. This means maximizing range, efficiency, and safety, all while minimizing cost. With our battery factory in Mirabel, Quebec, we will take direct control over this component's design and development, allowing us the opportunity to greatly improve upon existing technology by creating batteries specifically designed for Lion vehicles. Our goal is to create batteries absolutely optimized for Lion EV performance. We believe that the most important battery characteristics are range, safety, energy density, weight and size, cost, and durability. We are dedicated to continuous improvement of our battery innovation in order to maintain our vehicles' position as one of the highest quality EVs available on the market.

Lion uses Dana/TM4 electric powertrains and motors in all its zero-emission vehicles. This is perhaps one of the most innovative components in our school buses. Electric powertrains represent a significant improvement over traditional internal combustion engines (ICE), primarily because they are much more energy efficient than ICE powertrains. This is because batteries are more efficient at delivering energy to a motor to move the wheels of an electric school bus than diesel is at delivering energy to an internal combustion engine to move the wheels of a fossil-fuel-powered school bus. This improved energy efficiency means that comparatively less energy is required to move an electric school bus than an ICE school bus. This makes zero-emission buses extremely quiet, smooth, and stable in temperature while operating, as opposed to ICE school buses, which lose significant amounts of energy efficiency to engine noise, heat, and component friction. For more information on how electric motors work, please see the **RETURN ON INVESTMENT** section of our response on page 30.

As our team of 300 engineers discover, design, and implement technological improvements of our zero-emission school buses, each vehicle generation will be optimized over the last. Lion was founded on the principle that its all-electric buses should be innovated by direct end-user feedback. This has resulted in significant advancements being deployed for our vehicles over the last several years. Lion will continue to thoroughly collect and leverage end-user feedback to maintain its high level of attention to detail when it comes to client satisfaction. Our commitment to providing fleets with the market's most innovative and complete turnkey electric vehicle solutions begins with our constant focus on improvement driven by customer input.

Lion is pushed by its desire to maintain a position of leadership in emerging technology in the EV space. We continuously design and deploy new and innovative services and vehicle features for our zero-emission school buses. We constantly develop electric vehicle advancements to maximize benefits to fleets. Lion's R&D and engineering departments are solely devoted to the perfection of its EV design. We expect countless innovations to occur in the zero-emission vehicle sector in the coming years. Lion will remain at the cutting edge of these discoveries as it leverages its unmatched electric vehicle experience to revolutionize the EV market. Below are just a few examples of our history of continual innovation.

### Vehicle-to-Grid Capability •

LionC has Vehicle-to-Grid (V2G) capabilities when paired with a selection of compatible bi-directional charger options. Lion has partnered with multiple leading integration providers to integrate a platform that manages both charging and discharging of the bus's battery. As a result, this can reduce energy costs for fleet operators, stabilize the grid during peak hours, enable electric vehicle batteries to serve as emergency power sources, and expand innovative technologies that support a net-zero future. The LionEnergy team



will identify and recommend the optimal charging infrastructure to best meet the V2G needs of the Requesting Department.

#### **Safety Without Compromising Range •**

As an OEM that only manufactures purpose-built zero-emission medium- and heavy-duty vehicles, Lion's mission is to provide the most advanced and safest electric school buses to fleets across America. Each of our vehicle components go through due diligence in which we consider their impact on range and safety. Our goal is to design the safest possible school bus with the most possible range per charge. This objective led us to identify that a heavy-duty hydraulic or air brake system, combined with electric motor regeneration, or "regen," provides safety without compromising range.

#### **Wider Aisle •**

Lion is one of the only electric school bus manufacturers that offers a wider aisle of 18 inches, as opposed to the typical twelve-inch-wide aisle offered by other OEMs. This wider aisle makes our school buses safer because it allows children more mobility inside the bus and gives us the ability to add three-point seatbelt seats without losing any passenger capacity. Lion can provide this innovative feature because its zero-emission school bus bodies are 102 inches wide. Currently, the industry standard for school buses is 96 inches wide. This feature of our electric school buses is one of the most popular among drivers and students. This is especially true because it is easier to walk through the aisle of our buses than other manufacturers' buses. For drivers, this is particularly important because the child safety check is now a mandatory procedure in most states, which makes it necessary for the driver to walk all the way to the back of the school bus multiple times a day to verify that all children have disembarked after each route. Lion's wider aisle is also safer because it allows for all bus passengers to exit the bus more easily in case of emergency.

#### **Sound Generator •**

Every Lion all-electric school bus has a sound generator installed to ensure that students, operators, technicians, and pedestrians hear the school bus when it is on and moving. Zero-emission school buses are so quiet that they can easily be on without anyone knowing, which could be dangerous in schoolyards and workshops. This is because electric motors generate minimal noise while operating. Lion developed this specific innovation to directly address this safety concern and improve the user-friendly operation of our buses.

#### **State of Charge •**

Lion has designed each of its zero-emission school buses with state-of-charge (SOC) indicators to facilitate efficient charging and help operators determine the bus's SOC percentage at a glance. In fact, our buses' exterior marker lights serve as charging indicators. For example, if the first light is solidly on and the second light is blinking, that means that the bus's SOC is between 33% and 66%. If the first two exterior marker lights are solidly on and the third light is blinking, that means that the bus's SOC is now between 66% and 100%. Once all three lights are solidly on, the school bus is fully charged. Lion's electric school buses come with charging ports that can accept both Level II (J1772) and Level III (SAE Combo CSS Type 1) connectors. Another Lion innovation has been to adapt the charging port indicators to ensure that drivers will not leave the school bus if it is not properly charging. We added a three-mode light to the charging port: off, lit, and flashing. When the light is off, it means that the school bus is not charging. When the charging port light is solidly on, it means that the school bus is on and charging has been activated. When the light is flashing, it means that the school bus is on, but charging has not been activated. The driver should not leave the bus until the light is solidly on, indicating that the bus is actively charging.

#### **Touchscreen Interface •**

Each Lion zero-emission school bus comes with an onboard touchscreen to create a user-friendly interface for operators based on ease-of-access to bus controls. The touchscreen controls the bus's smart charging abilities, pre-heat and pre-cool settings, sound generator settings, and a multitude of other bus features.



To control smart charging, the driver simply selects their charging preferences on the touchscreen to maximize charging efficiency. The onboard touchscreen serves a variety of other purposes: it registers power usage, records driver efficiency, grants access to the maintenance interface, displays battery SOC percentage, manages the charging interface, and collects data. All information presented by the onboard touchscreen is recorded and can be extracted as a report that can help operators understand each of their Lion school buses' performance and efficiency. Lion designed this innovation with the end-user in mind and it helps maintain a seamless electric bus driving experience.

### **Composite Body •**

Lion is proud to have a composite body on its all-electric school buses. This material prevents corrosion and is durable even in excessive temperatures (extremely cold to extremely hot), which means that our buses look cleaner and newer over long periods of time. Composite bus bodies require less maintenance and thus save fleets money over time. Composite has the additional advantage of being lighter in weight than other bus body materials, yet equally as safe, making it an excellent choice for electric school buses because reduced weight translates to greater efficiency. With many school bus operators facing increased safety regulations and rising costs, Lion leverages this innovative solution that improves bus durability and lifespan. In addition, composite materials are more sustainable than their steel counterparts.

- ✓ Lion's composite panels are manufactured with the highest safety standards in mind. The panels ensure maximum vehicle integrity compared to steel bus bodies that are at risk of rust and corrosion infiltration, which can weaken the vehicle structure and shorten the useful life of the bus.
- ✓ The panels are not affected by common road chemicals such as ice-melting solutions dispersed in winter conditions in some areas.
- ✓ Lion's one-piece composite panels are free of rivets and rivet holes, which helps prevent water intrusion and in-wall corrosion. Any panels damaged during operation would not need to be replaced like metal panels would. Composite panel repairs are simple and can be accomplished at any traditional body shop to restore them to their original strength and aesthetics.
- ✓ Lion's composite panels are not painted. They are manufactured with an integrated gelcoat layer. This gelcoat layer enhances waterproofing which further protects the bus body's integrity. The gelcoat also contains fire-resistant compounds, preventing any fire hazard concerns as it is fire-retardant.
- ✓ The panels are bonded to the vehicle's structure using an industrial grade epoxy-type glue, which allows for a flexible yet sturdy attachment, unlike metal rivets which create stress points on the bus body:
  - One-piece composite roof
  - One-piece side panels (left and right)
  - One-piece front and rear masks



## TECHNICAL SUPPORT

Operating an EV dealership requires specialized training and skillsets that traditional dealerships typically do not possess. Lion has used its six years of real-world electric vehicle experience to build an impressive portfolio of resources to establish an optimized procedure to maximize sales, reduce downtime for fleet clients, and meet local laws.

### A. Lion Customer Success Team

Based on our experience deploying and servicing zero-emission vehicles across North America, Lion has developed the Lion **Customer Success Team** to provide a full schedule of classes to customers. We offer in-person training along with video trainings to as many individuals as necessary: drivers, operators, and other fleet professionals.

Trainings are offered to a wide range of industry stakeholders such as:

- Drivers
- Mechanics
- Technicians
- Air districts
- Business officials
- Transportation professionals



Lion has created a customer training program that is tailored to each client's unique training needs. A few weeks before the delivery of your new Lion electric school buses, Lion's **Customer Success Team** will reach out to schedule your fleet's first training when your vehicles arrive. At this time, the **Customer Success Team** will gauge your fleet's exact learning needs: Would the Requesting Department's drivers like EV driver training? Does your fleet need a longer, more in-depth training session, or would you prefer a shorter, high-level training session? Based on your answers to these questions, Lion's **Customer Success Team** will design a personalized training curriculum, customized to the Requesting Department's unique knowledge profile.

On the day of your buses' delivery, the Requesting Department's assigned **Customer Success Team** member will join you at your fleet site to provide essential vehicle training from the very first moment. This initial learning session will cover critical topics such as bus operation, energy-efficient driving techniques, driver controls, and owner's manual review, just to name a few. A high-level training can be completed in as little as one hour, while a more in-depth training can last as long as 3 hours or more, depending on how much EV education the Requesting Department's fleet would like to receive. Every Lion vehicle delivery has a **Customer Success Team** member present, even for returning customers. Our goal is to make your total fleet electrification journey as simple and effective as possible.

If the requesting Department would like technical vehicle training, your dedicated **Customer Success Team** member can refer your fleet to one of our Technical Trainers, who will provide comprehensive service and maintenance education to your fleet's in-house mechanics and





technicians. This training can be offered in addition to the driver education already provided as part of the initial delivery package.

The Lion **Customer Success Team**'s primary goal is to provide an overview of how zero-emission vehicles work at different comprehension levels based on the training audience's existing knowledge. In most cases, electric buses are new for customers, and education is necessary to help bridge the knowledge gap from diesel to electric. That is why the **Customer Success Team** curriculum is focused on an interactive, hands-on learning experience that includes a bus walkthrough, step-by-step operational instructions, and a chance for the requesting Department's staff to ask as many questions as needed. Lion has found that when a wide range of individuals participate in these trainings, they are typically more receptive to this zero-emission technology and eager to learn how to operate, drive, and maintain these electric buses.

Lion's training curriculum is typically taught in-person at customer fleet sites but can also be presented at any of Lion's Experience Centers to ensure that our EV expertise is shared with all interested stakeholders, such as business officials, transportation professionals, air quality agencies, local first responders and fire departments, and other relevant parties. Trainings hosted at our Experience Centers tend to be longer, more in-depth sessions involving presentations, interactive bus demos, and safety lessons to ensure that the larger audience receives adequate instruction.

From this initial training, the requesting Department's assigned **Customer Success Team** member will be dedicated to your fleet's electrification journey. If at any time your drivers or operators have a question about their new Lion electric school buses, even something as simple as, "What does this button do?" they can call your designated **Customer Success Team** member and promptly receive a helpful answer. This Lion representative will remain available to provide assistance as needed.

At Lion, we understand that circumstances change, and staff turnover do happen. That is why the Lion **Customer Success Team** can offer refresher trainings to existing customers but also to new stakeholders that become responsible for the electric school bus after the original purchaser has move on. This ensure that fleet's EV knowledge remains accurate and up to date while also providing essential vehicle training to new stakeholders. It is part of Lion's philosophy to make sure that our clients old and new have the training, knowledge, and skills to make the most of their Lion electric vehicles.

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## B. LionBeat

The LionBeat is our telematics fleet management software that is installed on all vehicles and that can be customized to meet the requesting Department's specific data collection and reporting needs. Once your LionBeat subscription has been activated, you can access your reports and real-time fleet data from any of your electronic devices.

### Purpose-Designed EV Telematics System

#### Live View/Map

- Live position (GPS), vehicle speed, state-of-charge percentage (SOC %)
- Live traffic
- Vehicle state (charging, driving, stopped)
- Live temperature
- Planned route vs actual route; customer zone (geofencing)

#### Driver

- Hard acceleration, cornering, and braking
- Seatbelt use; driver's speed profile
- Driver's energy use (kWh/distance)
- Driver score based on behaviors
- Driver live feedback; collision alert

#### Routes

- Routing (itinerary, actual vs planned, missed stops)
- Dispatch options
- Average energy use/distance
- Energy use (kWh), trip history, distance
- Idling vs driving time
- Duration and time information (date/time)
- Accident reconstruction

#### Vehicle

- Odometer
- Total motor hours preventive maintenance
  - Maintenance history, reminders, etc.
- Live traffic

#### ELD/DIVIR

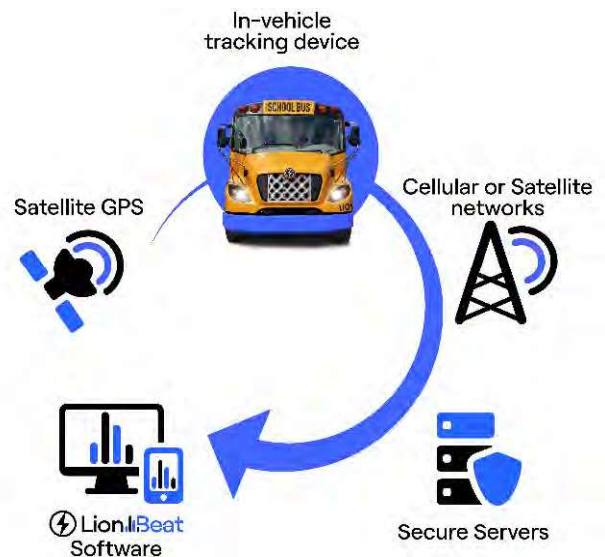
- Driver vehicle inspection report history (DVIR)
- ELD information
- HOS history

#### Charging

- Vehicle charging state (AC/DC)
- Charging power (kW)
- Total energy charged (kWh)
- Charging location (GPS)
- Charging session history (date, time, duration, kWh, location)
- Charging cost
- Vehicle full charge alert

#### Accessories/Add-Ons

- Non-powered trailer and assets tracker
- LEO live coaching speaker
- Driver identification (RFID)
- HID reader
- Auxiliary remote activation
- Alert/emergency button
- School bus essentials (amber and red lights activated, etc.)



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## ⚡ LionliBeat PACKAGE PRICING



Purpose-Designed EV Telematic System



### Package Pricings

Services Included	Premium \$49 <sup>95</sup> month/vehicle
<p><b>Offline Reports</b> Pre-scheduled reports, such as:</p> <ul style="list-style-type: none"> <li>→ <b>Rules &amp; Exceptions</b></li> <li>→ <b>Fuel &amp; EV Usage</b> Trips, distance, energy consumption, duration, etc.</li> <li>→ <b>Driver Behaviors</b> Risk management, road speed, harsh acceleration, harsh braking, cornering, regen use, speeding, etc.</li> </ul>	Unlimited
<p><b>Unlimited Online Reports</b> Accessible through the software</p>	✓
<p><b>Online &amp; Mobile Software Access</b> Access data, such as:</p> <ul style="list-style-type: none"> <li>→ Live maps (dispatch)</li> <li>→ Zones</li> <li>→ Routes</li> <li>→ Groups</li> <li>→ Real-time vehicle position &amp; movement</li> </ul>	✓
<p><b>Software Support</b> 24/7 assistance – French &amp; English</p>	✓
<p><b>Electronic Logging Device (ELD) &amp; Hours of Service (HOS)</b></p> <ul style="list-style-type: none"> <li>→ Integrated electronic logbook</li> <li>→ HOS management</li> <li>→ Real-time communication between the driver and the office</li> </ul>	✓
<p><b>eDVIR</b> Electronic driver vehicle inspection report</p>	✓

**Notes**

- Other conditions may apply
- Fleet pricing available
- Wide variety of additional options and accessories available

For more details,  
contact [lionbeat@thelionelectric.com](mailto:lionbeat@thelionelectric.com)

Make the **Bright** Move.  
Go with **LionBeat**.



2022-05-25

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## C. LionEnergy

Building on our unmatched experience deploying all-electric vehicles and charging infrastructure, Lion's engineers and energy specialists have leveraged their knowledge and expertise to create **LionEnergy**, our answer to the charging infrastructure challenge that zero-emission fleets have been facing for years.

**LionEnergy** was established for one reason: to solve the charging infrastructure problem by providing a turnkey solution that addresses each fleet's unique charging needs. **LionEnergy** helps fleets identify and choose the optimal charging stations for their electric vehicles and can manage the countless elements involved in infrastructure installation. In **LionEnergy**, we bring together our partnership with charger manufacturers, our experience managing complex infrastructure projects, and our unparalleled track record of designing and deploying zero-emission medium- and heavy-duty vehicles to create the ultimate partner in the requesting Department's charging infrastructure journey.

### End-to-End Charging Infrastructure Solution



The dedicated team of engineers and energy specialists that make up **LionEnergy** design, procure, and plan custom infrastructure solutions for fleets, combining chargers with electrical infrastructure such as transformers and distribution, distributed energy resource (DER) strategies, and vehicle-to-grid (V2G) technologies. Our expert staff understand what it means to bring power to vehicles in any situation and any environment. **LionEnergy** has created numerous innovative solutions to allow for charging station deployment in extremely hot environments, like parts of California where summer temperatures regularly soar above 100 °F, to extremely cold ones like Canada, where taiga and boreal winters see temperatures often drop well below 0 °F.

**LionEnergy** does not manufacture charging stations, but rather leverages authorized reseller agreements with a number of charger manufacturers.

To date, **LionEnergy** has deployed charging stations all over the United States and Canada, including both alternating current (AC) chargers as well as direct current fast charging (DCFC) ones.

**LionEnergy**'s management team, whose sole focus is optimizing the charging infrastructure journey for fleets, understands that it is important to initiate infrastructure discussions with the electric utility, charger OEM, electrician, and fleet early in the process. Charging station installation can take months from start to finish, especially for complex projects that involve large numbers of chargers. **LionEnergy** has the experience, skills, knowledge, resources, and relationships with critical stakeholders needed to smooth and expedite the infrastructure process. Our connections with utilities, agencies, and electricians across the US allow us to simplify this otherwise burdensome project that can present a challenge to even the most well-equipped fleets. **LionEnergy** also has a depth of expertise with environmental regulations that makes navigating the policy landscape of infrastructure installation much more manageable for our clients.

With more than 950 electric vehicles on the road today, and many customers boasting dozens of our vehicles at their individual fleet sites, Lion understands the need for timely and tailored charging infrastructure to support the deployment of zero-emission vehicles at scale. This is why Lion has dedicated the **LionEnergy** team to managing every aspect of the charging infrastructure process,



including identifying appropriate chargers, managing the installation with the local electric utility, and providing recommendations for fleets' long-term electrification plans. To ensure each customer's success, we always open the infrastructure conversation with the utility and all relevant project partners as early as possible. This initiative is driven by LionEnergy's guiding principles:

1. **Technical Capability** • The LionEnergy team's technical capability has been proven over years of direct experience with medium- and heavy-duty electric vehicles and associated charging infrastructure. Our technology works — it is not a prototype, nor a test, nor an experiment, but a solution rooted in our knowledge, skills, and qualifications that make us an invaluable partner on any fleet's charging infrastructure journey.
2. **Proposed Solution** • Lion understands that the requesting Department's main concern during the infrastructure process may be the efficiency and ease of electric vehicle charging, which can compromise vehicle uptime if handled incorrectly. LionEnergy will work tirelessly to build a solution that minimizes vehicle downtime caused by charging, which will allow your Lion vehicles to achieve optimal uptime. Our solution will make vehicle charging so efficient that it will help accelerate the requesting Department's transition to a fully zero-emission fleet.

Lion's expertise with charging is not limited to infrastructure. We understand that our electric vehicles' battery packs are just as critical to consider in the charging equation. Lion's batteries are governed by a proprietary battery thermal management system (BTMS) and protected by multiple state-of-the-art safeguards to allow the batteries to adjust to lower and higher energy demands of each module. This ensures maximum lifespan, minimal degradation, and the longest range in the industry. It also secures vehicle performance by enabling the batteries to respond adequately to the demands of the vehicle. LionC charging time varies between 2.5 and 11 hours depending on the state of charge percentage that the battery was at when the bus was plugged in to the charging station and depending on the type of charger being used (Level II or Level III).

**LEVEL II  
(J1772)**



**LEVEL III  
(CCS-Combo)**



Lion vehicle charging ports can accept a Level I charger as well, but we recommend using either Level II (J1772) at a minimum or Level III (SAE Combo CSS Type 1) connectors to reduce charging time.

Lion strongly recommends the Requesting Department's procurement department to take full advantage of our LionEnergy team that can help identify the best charging stations for your fleet needs.



## D. Grant Assistance



Lion's turnkey electric vehicle solution goes above and beyond what most other zero-emission vehicle manufacturers offer. **Lion also helps with grant applications and project management to help fleets apply for subsidies.**

It comes as no surprise that the upfront capital cost of an electric bus can represent a burden for some fleets. To solve this program, Lion has a Grant Team dedicated to assisting fleets with identifying and applying for grant funding opportunities the moment they become available. Our Grant Team continuously monitors local, state, and federal grants that are currently available and upcoming. The Grant Team will keep the Requesting Department updated on the latest developments in the zero-emission vehicle grant arena to prepare your agency to secure as many incentives as possible. Lion was the first vehicle manufacturer to receive modern Type 1 zero-emission battery electric school bus funding in the nation. From this impressive beginning, Lion has grown and maintained a robust Grant Team to help fleets master the proposal writing process. This team's founding principle is to assist fleets with grant applications to win them enough incentive funding to make their zero-emission fleet goals possible. To help fleets deploy Lion electric vehicles, the Grant Team discovers, leverages, and secures funding opportunities across all potential sources of financial support. Lion has an unmatched ability to win grant funding and a proven record of success. To date, we have secured funding across the US, totaling over tens of millions of dollars in grant funds.

## E. Service, Maintenance, and Technical Assistance



An investment in a Lion electric vehicle is not just an investment in the Requesting Department's long-term zero-emission fleet goals, it is also an investment in your staff's education and professional development as they learn to operate and maintain your new electric vehicles. Lion has a robust team of **highly qualified experts** who are equipped with the training, knowledge, and skills to answer all questions that your staff may have about their Lion vehicles.

**The Bright Squad** • The BrightSquad is Lion's Mobile Technical Support Team, a network of EV experts qualified to provide in-person and remote technical assistance to all Lion customers, regardless of their location. Our zero-emission vehicles have remote access capabilities and onboard components that allow for easy troubleshooting and free software updates. This technology enables the BrightSquad not only to diagnose, but to solve issues remotely, thus reducing any possible vehicle downtime significantly. The BrightSquad can also travel to customer sites directly to perform in-person maintenance, service, and warranty work.

At Lion, focus on quality is at the core of everything we do. We strive to offer the highest possible quality of vehicle and service, and this is made possible by keeping track of ongoing issues varying from access to the vehicle to servicing issues to actual repairs. To this end, corrective measures and quality control continue to be dynamic processes at Lion. Rigorous inspections and audit systems supported by documented standards in place, have confirmed that our vehicles continue to meet and exceed our customers' expectations. Please refer to the **Quality Control** section of our response on page 34 for more details on Lion's robust quality assurance system in place.

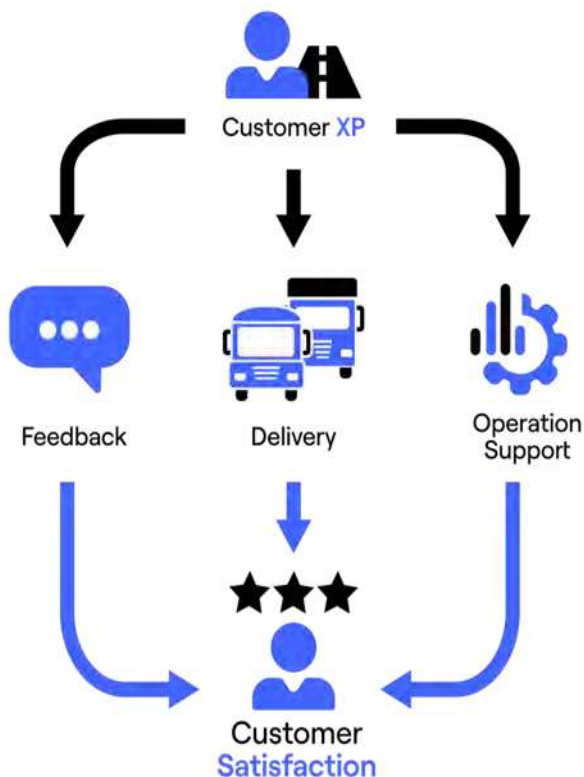
In addition, Lion invests in our customers' EV training so that their in-house mechanics and technicians are comfortable performing specified vehicle maintenance procedures. For more information on the in-depth training Lion provides our clients, please see the Lion **Customer Success Team** section of our response on page 18.

Lion's BrightSquad is equipped with tools and parts sourced at any of our Experience Centers across the US. If Lion does not have an Experience Center near a customer's site, Lion will work with local

# H.K. TRUCK CENTER

third-party service providers to reduce any vehicle downtime that may result from vehicle maintenance or service. For example, we work with local air conditioning repair shops and vehicle body shops when needed. For more information on our Experience Centers, please see the **EXPERIENCE CENTERS AND R&D CENTERS** section of our response on page 26.

We value the importance of providing outstanding customer service whenever our clients need help. If a customer's mechanics or technicians are unsure about anything relating to their Lion vehicle, they can call our customer support line toll-free at 1-855-546-6706, Monday through Friday, 8:00 a.m. to 5:00 p.m. Eastern Time, and **Lion's specialists** will answer all their questions. Our experts can even guide customers through the required process to perform specific vehicle maintenance items. Each of our service events and interactions is followed by a customer satisfaction survey that evaluates the work of our technicians, our responsiveness, and the quality of our service. For Lion, it is crucial to provide the best possible customer experience and learn from it so that we promote a company-wide culture of continuous improvement. We pride ourselves in having a response time of under a few hours and we resolve customer problems within 48 hours of their request, 94% of the time. These impressive statistics are evidence of Lion's dedication to the customer experience success structure.



## Customer Experience Structure

### Pre-Delivery Meeting

- Meet with client to present support plan and discuss training expectations.
- Capture important client information, including:
  - How many drivers need to be trained?
  - How many mechanics need to be trained?
  - Does the client have training staff?
  - Vehicle in-service date
  - Charging infrastructure

### Delivery

- Following the sale beyond the after-sales service
- Lion's detailed explanation of service processes
- Charging infrastructure support
- Entry into Service Support
- Assistance from Mobile Technical Support Team
- Training:
  - Drivers
  - Mechanics

### Feedback

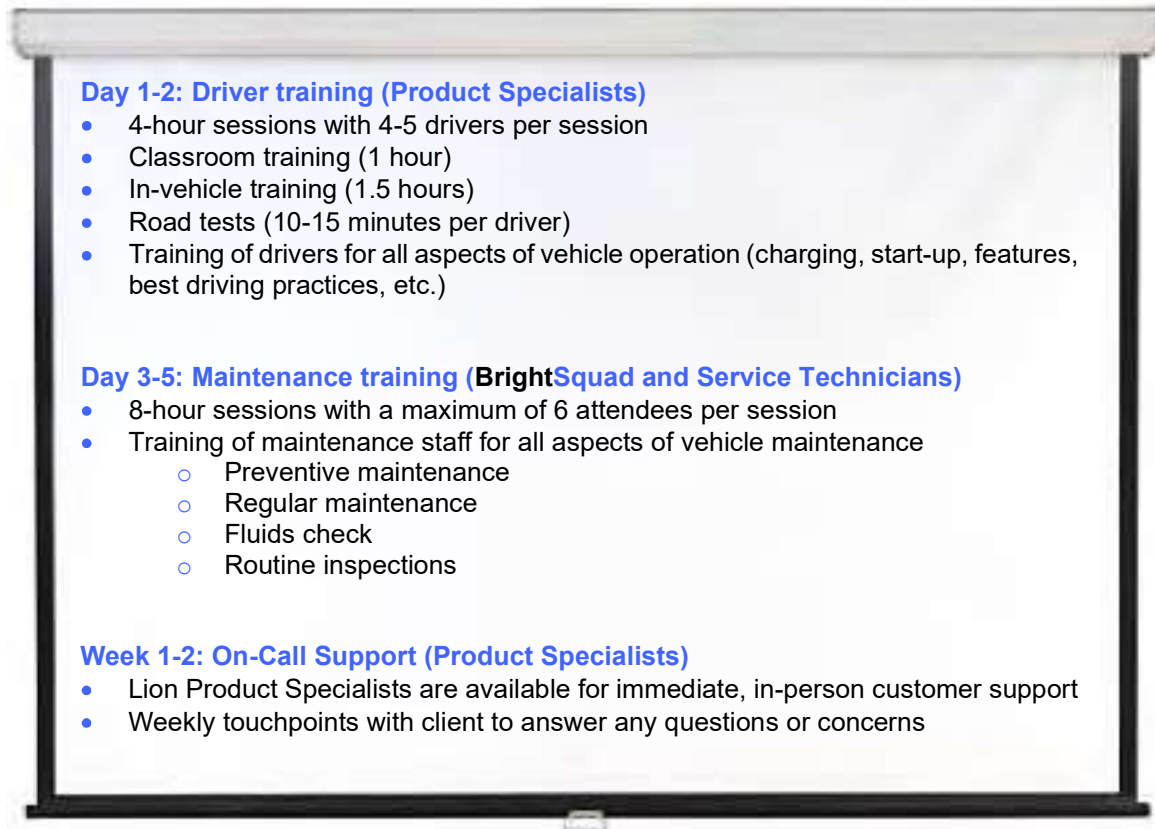
- Surveys, visits, phone call, etc.
- Analysis, presentation, and action plans

### Operational Support

- Telematics with the LionBeat
- Battery energy consumption analysis
- Smart charging capabilities



## **BrightSquad** Client Training Curriculum



## F. Experience Centers and R&D Centers

Lion currently operates 12 Experience Centers across North America, including two located in Quebec (Terrebonne and Saint-Jérôme); two in California (Los Angeles and Sacramento); one in Seattle, Washington; one in Jacksonville, Florida; one in Colorado, Denver; one in Virginia, Richmond; one in Vermont, Milton; one in Minnesota, Shakopee; one in New Brunswick, Moncton; and one in British Columbia, Richmond.

Lion plans to open more Experience Centers in the coming years and is also working to establish two R&D centers across North America. Our Experience Centers function as service facilities, parts distribution warehouses, educational hubs, and sometimes even as Lion dealerships, as applicable to state law. Lion's Experience Centers serve as the headquarters for the BrightSquad, who can perform all customer vehicle maintenance and service needs with the tools and equipment housed within these Lion facilities. This means that our Experience Centers act as service centers where Lion vehicles can be brought for more intensive maintenance needs. These centers also function as final assembly staging grounds where newly manufactured Lion vehicles are sent for pre-delivery preparation and inspection before being shipped to their final customer destinations. For more information on the work our BrightSquad does, please see the **SERVICE, MAINTENANCE, AND TECHNICAL ASSISTANCE** section of our response on page 24.





Additionally, Lion's Experience **Centers** serve as parts distribution facilities for parts and inventory specific to Lion vehicles. We can ship parts from these centers directly to customer sites based on each client's needs. For more information on our parts network, please see the **PARTS DISTRIBUTION CENTERS** section of our response on page 27.

Lion takes EV awareness and education very seriously and invests in our customers' zero-emission vehicle knowledge by hosting Lion **Customer Success Team** training sessions not just at client sites, but also at our Experience Centers. Our expert staff take the time to educate more than just individuals in the fleet operations industry; they also organize training sessions for electric vehicle stakeholders such as community leaders, environmental activists, air quality agencies, local first responders and fire departments, and any other individuals or groups who may be interested in learning more about zero-emission vehicles. To this end, Lion's Experience Centers serve as dedicated hubs around which industry and community can come together to educate themselves about electric school buses.

Besides our Experience Centers, Lion believes that R&D facilities are just as important for the continuous improvement of our zero-emission vehicle technology. Our team of 300 engineers are exclusively devoted to the perfection of our EV design. To achieve this, our original Lion factory in Saint-Jérôme, Quebec, already functions as a research and development center. As we will manufacture our own batteries at our Mirabel battery factory, we will expand our existing R&D efforts to the design and development of the optimal battery technology for our vehicles. Lion is also considering establishing R&D at our Joliet, Illinois, plant. We may even open additional R&D centers across North America in the coming years. This commitment to research and development is evidenced by our unending quest to establish the state-of-the-art facilities necessary to achieve the perfect electric vehicle design.

Lion will typically open an Experience Center where there is a significant volume (12+) of our vehicles in order to ensure that all our local customers experience a smooth, successful transition to electric. Having an Experience Center near multiple customer sites means we can provide ongoing service, parts, training, and support to these clients to help them achieve their fleet goals of deploying zero-emission vehicles.



## G. Parts Distribution Centers

In addition to Lion's Experience and R&D Centers, we have also created a robust parts distribution system within our established network of Experience Centers to store parts that are proprietary to Lion electric vehicles. Lion primarily leverages tier 1 suppliers on all our major components, so it is possible to get most required parts at local service shops and parts stores. To best support the Requesting Department, we make sure that the original Lion factory, in Saint-Jérôme, has over 10 million parts in stock specifically tailored to our zero-emission vehicles. This makes it easy for us to ship parts covered by warranty or necessary for vehicle repairs in less than 48 hours on a typical basis. Lion's network of Experience Centers helps us send parts to our customers all over North America, regardless of their location. Otherwise, local third-party suppliers will have most of the non-proprietary parts required by clients performing their own Lion vehicle maintenance and/or service. Most of Lion's vehicle parts are non-proprietary.

If Lion customers want to obtain warranty service for our electric vehicles, they can call toll-free at 1-855-546-6706, Monday through Friday, 8:00 a.m. to 5:00 p.m. Eastern Time, and our friendly department staff will address all their questions and needs. Lion has long-term relationships with critical electrical and non-electrical components suppliers and has used industry-standard parts to make maintenance easier for clients' in-house mechanics and technicians, as they are already familiar with these common components. Our well-established parts distribution network allows us to confidently say that our customers are always taken care of in a timely manner, especially since our zero-emission vehicle technology allows us to perform a variety of maintenance and repair tasks remotely.



## H. Manufacturing Facilities

Lion is unique in the commercial vehicle industry because we only manufacture medium- and heavy-duty electric vehicles. We do not manufacture internal combustion vehicles, alternative fueled vehicles, hybrids, or other non-electric vehicles. Lion further stands out in the clean transportation space because we do not convert existing diesel vehicle chassis to zero-emission and do not retrofit internal combustion vehicles with electric powertrains. Everything we do is motivated by our desire to manufacture purpose-built, fully integrated zero-emission commercial vehicles.

### Saint-Jérôme, Québec

To support this mission, Lion has devoted substantial time and resources into growing our manufacturing capacity in recent years. The original Lion factory, located in Saint-Jérôme, Quebec, is currently able to manufacture up to 2,500 all-electric medium- and heavy-duty vehicles each year. This number is an increase from the initial production capacity of this factory when Lion was first established. We expanded the manufacturing facilities of our Saint-Jérôme headquarters in the last few years to meet rising demand for our zero-emission vehicles.

### Joliet, Illinois

To further scale our production capacity and extend our manufacturing activities into the United States, Lion purchased and took possession of a 900,000 sq ft state-of-the-art, automated factory in Joliet, Illinois. This facility will be able to manufacture up to 20,000 all-electric medium- and heavy-duty vehicles each year, making it the largest zero-emission commercial vehicle plant in the US. This massive production capacity will help us meet the growing demand for zero-emission commercial vehicles that is driven by fleets' evolving sustainability goals, their desire for vehicles with the lowest total cost of ownership, and recent state and federal policy campaigns pushing for carbon neutrality across the nation.

### Mirabel, Québec

Lion also has a battery factory in Mirabel, Quebec, which will allow it to manufacture its own batteries and thus have greater autonomy over the supply chain for its vehicles' most critical component. This plant will allow us to vastly improve upon existing battery technology by giving us the opportunity to develop batteries designed exclusively for Lion vehicles. The battery innovations resulting from this facility will help Lion move closer to our goal of perfecting the EV design. In addition, our increased control over our own battery supply chain will realize reduced potential disruptions to our zero-emission vehicle production caused by recent global supply chain issues. Manufacturing our own batteries will also enable us to have greater autonomy over the local sourcing of our battery components and will ensure that each component is responsibly and ethically sourced. Lion prefers to employ locally sourced vendors and materials whenever possible.

A prominent feature of modern-day manufacturing is the fact that many countries across the world are now developing policies to grow their domestic economies. It is now normal for governments to encourage domestic business development and job creation through laws and regulations. Lion, at the forefront of innovative manufacturing, is ready to navigate this new world of ever-evolving policies to meet all local, state, and federal requirements for zero-emission vehicle deployment.



As of today, Lion is currently able to meet Buy America requirements with final stage assembly, but with our Joliet, Illinois, factory, we will be able to manufacture our electric vehicles entirely in the US. Buy America mandates companies to assemble and manufacture their vehicles in the United States with a strong American content percentage. Companies that must comply with these provisions typically find



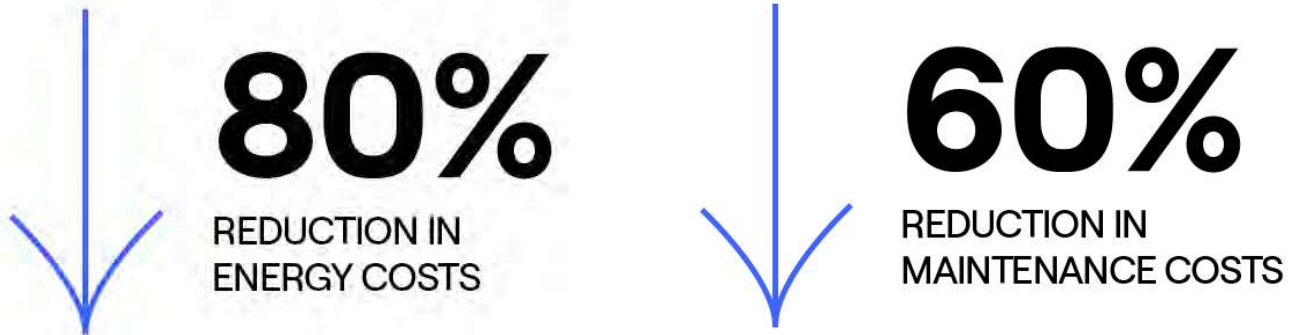
themselves investing significant amounts of time and resources into becoming compliant. Lion's Illinois factory is an investment that signals to fleets, agencies, and others that we are ready to take the path forward to complete Buy America compliance.

With our manufacturing facility in Illinois, we will meet Buy America requirements for vehicle production in the US and will be able to take a stronger position in choosing American-sourced components and materials for our zero-emission vehicles produced in Joliet. Lion will maintain our preference for local suppliers and commit to our responsibility as a newly minted manufacturer of American vehicles to grow the US economy and support American jobs. We believe that our substantial investment in Illinois should result in revenue that is reinvested back into American communities. This is a policy that we stand by, and one that is critical to our success as a business. Some of our electric vehicle components may not have local suppliers when our Joliet plant is online because some components cannot be produced locally. However, Lion would support efforts to promote "made in America" preferences that will encourage these components to be domestically produced in the near future. Whenever possible, Lion will work with local, American suppliers for the components and materials needed for our American-made zero-emission vehicles.

Lion, with its plants based in Quebec and Joliet, Illinois, will be manufacturing EVs in both Canada and the US at the same time. This will allow us to comply with local, state or provincial, and federal laws and regulations in both Canada and the US simultaneously. Lion is proud to be an innovative manufacturer of medium- and heavy-duty electric vehicles that is uniquely capable of achieving success in today's complex manufacturing world.

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## RETURN ON INVESTMENT



The return on investment of a Lion zero-emission school bus will always be better than that of a comparable diesel school bus. Fleets typically realize energy cost savings of up to 80% compared to diesel vehicles when considering that electricity costs to charge an electric vehicle are generally much less than diesel costs to fuel traditional vehicles. This represents huge savings for fleets, as fuel is typically the greatest operational expense for the vehicle. In addition, maintenance costs of zero-emission vehicles are typically up to 60% less than maintenance costs for comparable diesel vehicles. This is because there is no exhaust, DPF, transmission, oil, or engine on an electric vehicle. There are also significantly fewer drivetrain parts on a zero-emission vehicle than on a diesel vehicle. Lion vehicle components also require much less maintenance compared to internal combustion vehicle components. Additionally, our vehicles possess regenerative braking capabilities, which greatly reduces the number of times the brakes need to be replaced because this feature minimizes brake use.

A Lion electric vehicle represents a return on investment in more ways than one. In addition to being a monetary return on investment, our zero-emission vehicles realize environmental and health returns. Lion vehicles eliminate criteria pollutant and greenhouse gas emissions in our American communities because they produce zero tailpipe exhaust. This, in turn, creates a cleaner, healthier, and safer environment for students, drivers, and the communities in which our electric school buses operate. Transitioning your fleet to zero-emission will have a considerable positive impact on the environment and the health of your community members. This type of return on investment, although difficult to quantify precisely, is priceless when it comes to protecting children's health.

Thanks to Lion's current robust manufacturing capacity of up to 2,500 medium- and heavy-duty electric vehicles each year, we have one of the fastest delivery timelines in the industry today. Our Joliet, Illinois, plant will increase our production capacity with 20,000 zero-emission commercial vehicles each year, which will only accelerate our delivery turnaround time and allow us to fulfill massive customer orders in a timely manner. This means that Lion has the unique ability to provide the best return on investment for the Requesting Department because we can deliver electric vehicles much more efficiently than other OEMs, which means you can start realizing your operational and maintenance savings sooner.

With our network of dedicated teams to assist clients with their smooth, cost-efficient transition to zero-emission, Lion is able to maximize the Requesting Department's return on investment throughout your entire sustainability journey. Our expert staff assist fleets with end-to-end, turnkey project management, including identifying and deploying the optimal charging stations for your Lion vehicles with [LionEnergy](#), offering in-depth training sessions for drivers and technicians with [Lion Customer Success Team](#), and providing maintenance and service support with the [BrightSquad](#). Lion is pleased to offer each of these

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services today, free of charge. Our professional teams will work together to create a 24/7 support system that will ensure the Requesting Department realizes a significant return on investment as quickly as possible. LionEnergy will help you choose the best charging stations, maximizing your vehicle uptime; Lion Customer Success Team will train your drivers on efficient regenerative braking techniques, further reducing your operational and maintenance costs; and the BrightSquad will be there to assist with your maintenance and service needs, reducing your vehicle downtime. Lion is the only medium- and heavy-duty electric vehicle manufacturer to offer this level of turnkey project management throughout your entire transition to zero-emission, from start to finish. With so many electric vehicle experts to support the Requesting Department, your return on investment is guaranteed to be our main priority.

## Where Does the 60% Cost Reduction Come From?

Lion has seen that up to 60% of total cost savings realized by zero-emission vehicles comes from **operational cost reductions**. As previously mentioned, this is because electricity to charge an electric vehicle is typically much cheaper than diesel to fuel an internal combustion vehicle. Throughout the lifespan of a single school bus, these cost savings add up and become substantial. Lion accompanies all our customers on their electrification journey and has developed tools to reduce maintenance and operations costs that no other OEM has been able to offer fleets. Maintenance cost savings may vary by deployment location, but will continue to improve throughout the lifetime of your Lion zero-emission vehicle.

### UPTIME

As the Requesting Department well knows, uptime is one of the most important factors that fleet operators take into account when considering an all-electric school bus. This is because increased vehicle uptime means more time on the road and less time in the garage undergoing expensive maintenance and service. It may also lead to a fleet needing to deploy fewer vehicles to accomplish the same amount of work. Lion's customers typically realize maintenance savings of 60% compared to fleets with diesel vehicles.

### LABOR

Labor shortage is a real issue in today's industry. It is expected that approximately 75,000 additional technicians will be needed in the next 3 years to meet industry demands. Most of this shortage is felt in the diesel technician sector. Switching to electric vehicles will reduce the pressure on this demand. Fleets that adopt zero-emission vehicles will likely realize additional savings because their mechanics' and technicians' efficiency and ability to focus on vehicle safety inspections for the entire fleet will increase. Lion recommends that the Requesting Department research the average hourly labor rate in your area in order to better calculate the operations cost reductions you should expect.

### PARTS

#### i. No Engine: Image Result for Engine Parts

A typical diesel engine is made up of over 2,000 components that need lubrication to minimize wear and tear. Lubricants and filters must be replaced on a regular basis, leading to approximately half a day of vehicle downtime per maintenance event on average. Labor expenses to perform these tasks also need to be considered. Additionally, the proper disposal of old lubricants brings added expenses and environmental concerns. Diesel engines must be entirely rebuilt at least once in their lifespan. This major rebuild will put the vehicle out of service for at least one week on average. As an example, expenses to rebuild an engine are in the several thousands of dollars. In comparison, electric motors are sealed and require no





maintenance. They only have 20 components that operate in a frictionless environment (magnetic field only) in conjunction with two end-bearings that are guaranteed for the life of the motor. **No maintenance is required.**

## In Comparison, Here Is a Lion Motor:

### ii. No Transmission on an Electric School Bus

Most of what was described above about diesel engines is attributable to the transmission. The transmission will eventually need to be rebuilt once in its useful lifespan as well, and oil changes must be performed regularly too. For manual transmission diesel school buses, human error can lead to catastrophic failure of the transmission itself, the driveshaft, or the differentials. An electric school bus has no transmission. Energy from the batteries power the motor which directly spins the wheels — it is a fully controlled system, which reduces fleet operations costs because the minimal amount of maintenance needed.

### iii. No Clutch

Clutch is, by definition, a part exposed to frequent wear and tear, so it must be replaced on a regular basis. For diesel school buses with manual transmissions, wear is often much more severe and much less predictable. A zero-emission school bus does not need a clutch, which reduces maintenance costs because it represents one less component that can fail.

### iv. No Turbo Compressor

This component operates at very high temperatures and is subject to frequent failure, which takes an expensive service event to fix. Electric school buses do not have turbo compressors, making them even more affordable to operate and maintain.

### v. No Fuel System

The fuel system on a diesel school bus is composed of pumps, filters, particulates, plumbing, and fuel tanks. Filters need to be changed on a regular basis, which increases vehicle downtime. Fuel pumps can also fail unpredictably, which may require towing the vehicle to a shop and can result in costly repairs. Zero-emission school buses have no fuel systems because they use energy from batteries to power their motors. These components are extremely simple and inexpensive to maintain.

### vi. No Exhaust System

Because of increasingly stringent legislation against harmful diesel emissions, exhaust systems on diesel vehicles have become extremely complex in the last decade. This complexity has led to a loss of component reliability and has increased the frequency of costly maintenance events for diesel vehicles. Most fleet operators agree that one of today's biggest concerns in fleet maintenance is the vehicle exhaust system, including the diesel particulate filter (DPF), which requires regular cleaning. In addition to the DPF is diesel exhaust fluid (DEF), which is another concern for fleet operators due to its cost. Diesel vehicles with DPFs required a constant supply of DEF; otherwise, severe engine problems will result, putting the school bus in "crawl mode." It will then need to be towed to the closest service center. Electric school buses do not have exhaust systems because they produce zero tailpipe emissions. This is just one more way that zero-emission vehicles are more affordable to maintain and operate than diesel vehicles.

### vii. Brakes

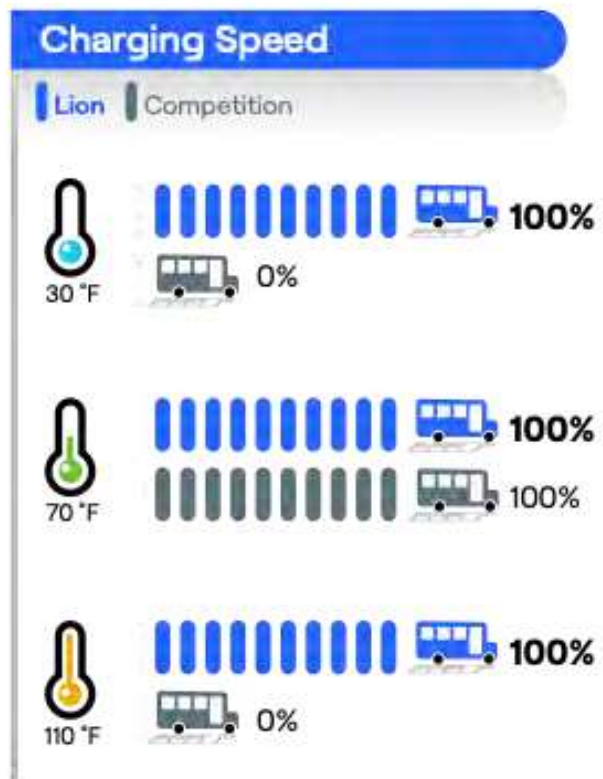
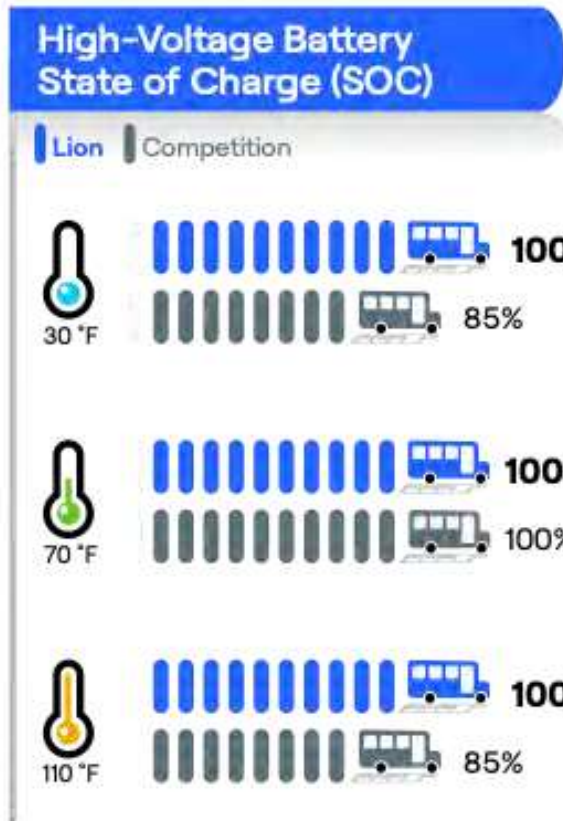
An electric school bus has implicit characteristics that lead to less maintenance as well. The regenerative braking system, for instance, has been integrated by Lion on all our vehicles to recuperate energy while the bus is decelerating. This is also a great tool to minimize costly brake replacement. School bus drivers often use the engine brake (known as Jacobs Brake) to decelerate, which creates resistance in the engine while slowing down the bus so that heat and exhaust gases are pushed through the exhaust system, sending heat (energy) and emissions into the air. This is an

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extremely noisy process that is not adapted to urban or residential areas. Increasing numbers of municipalities are currently legislating against the use of engine brakes to reduce vehicle noise levels in their communities. In comparison, regenerative braking is silent and extends the lifespan of our zero-emission vehicles' brakes. Experienced electric school bus operators have reported savings of up to 66% and reduced downtime by operating these vehicles because they have mastered the regenerative braking technique that saves brake life and reduces overall maintenance costs.

## viii. All-Electric School Buses Perform in Cold Climate Conditions

Operating in cold climates since 2016, Lion Electric vehicles have been tested and proven in all types of warm and cold weather conditions.





## QUALITY CONTROL

Since its founding, Lion has strived to have a robust quality assurance system in place. We are an innovative company that aims to achieve the highest quality standards. As such, we have continually improved and expanded our internal QA methodology. A focus on quality is at the core of everything we do. Lion's QA team produces monthly reports for upper management, detailing each quality project, its conducted tests, and its non-conformities and their resolutions, as well as trimestral reports to be included in board presentations by upper management. To this end, corrective measures and quality control continue to be dynamic processes at Lion.

Lion does not delete files. Furthermore, out of our desire to have a complete history of all performed tests, we have implemented an app-based tracking system that records all quality tests done for each of our vehicles: **iAuditor**.

Additionally, the Lion team responsible for our equipment's quality assurance and control has established a quality procedure that is integrated throughout our entire vehicle production line. This team is composed of highly qualified and experienced professionals who are constantly growing and adapting the team to support Lion's rapid expansion. Rigorous inspections and audit systems supported by documented standards are already in place, and they have confirmed that our vehicles continue to meet and exceed our customers' expectations.

### An Internal Methodology

The traceability of our vehicles, as well as opportunities for improvement, are monitored when a fault is detected at any point along the vehicle production line. The QA team has created a document process (*Quality Alert*) that can be filed internally or by a customer whenever a nonconformity is detected. Each nonconformity is described, followed by an internal review of what might have caused it. The corrective action, which is clearly indicated on the document, is then implemented. To close out the process, a Quality Control Director must sign the Quality Alert document, indicating that the fault or nonconformity has been resolved. This document is then electronically stored in the customer file.

### Suppliers

Lion's dedicated quality team not only oversees our production line, but also determines corrective measures to be implemented, as appropriate, before our clients assume possession of their Lion vehicles. This team ensures that **our suppliers** also adhere to our strict quality standards. Lion has established a PPAP program for all our suppliers, which requires our employees to inspect all Lion vehicle components that are manufactured elsewhere. Lion's quality team is provided with molds and measurements to help them perform verifications on our suppliers' component design plans, which includes visual inspection of materials upon their receipt. To ensure the highest standard of quality for our zero-emission vehicles, we select our suppliers based on their ability to comply with our strict quality requirements.

### Detailed Records and Tailored Questionnaires

In order to best support Lion's continuous innovation, Quality Assurance and Control is a key component of our prototype and platform development. To accomplish this, Lion keeps detailed records of our designs for each of our electric vehicle components. Every Lion vehicle that rolls off our manufacturing line is guaranteed to meet all specifications, options, and special requirements requested by the Requesting Department. In our iAuditor app, we have uploaded Maine based vehicle specifications checklists modeled on all relevant laws and regulations for each individual state. Extensive questionnaires, which Lion continuously customizes by adding clients' additional requirements, have also been created to ensure each vehicle's conformity to the unique quality standards for the appropriate state.



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## Dedicated Production and Assembly Lines

At Lion, our dedicated production lines are closely monitored to facilitate effective transfer of information and alignment with established assembly procedures. Each station along the production line is equipped with component diagrams to ensure the utmost care in our assembly. All steps for final tests are then sent to commercial production, where our engineers provide detailed assembly plans and measurements.

Having dedicated assembly lines means that our QA team can ensure that all manufacturing is done in a controlled environment where precise, systematic work instructions can be followed closely. For example, Lion vehicle batteries are customized in a secure and enclosed section of our assembly floor to protect the safety of our employees and create a space conducive to work that requires a high level of precision. To produce the highest quality vehicles possible, Lion's employees verify the calibration of their state-of-the-art manufacturing tools at the start of each workday. As mentioned above, we have already implemented tests and audits at specific inspection stations along the entire manufacturing sequence, all the way from component procurement up to the final assembly of each vehicle. All inspections are done in real time to maintain adaptability and allow for corrective measures to be deployed as the vehicle is being built.

Lion also has individual production lines for specific vehicle components: chassis, cab, batteries, etc. Using industry vetted methods, we have expert inspectors dedicated to the oversight of one production line at a time. Once a component has been manufactured, inspected, and audited, it can continue to the next steps of the assembly line. For example, on Lion's chassis production line, an inspector constantly verifies the quality of employees' work. An auditor will then validate if the inspector has overseen all assembly steps adequately. At Lion, we believe that three levels of verification are needed to ensure the quality standard we strive for in our electric vehicles: the professional and well-trained employee, the inspector, and the auditor. At the end of each vehicle's assembly journey is a final audit conducted once the vehicle leaves the production line, finalized by a 310 mi road test.

All tests and audits conducted by Lion's QA team are recorded and can be reviewed at any time. Test results can also be shared as required during pre-delivery inspections. Our highly trained delivery team is qualified to present all audits, certificates, and corroborative documents associated with each Lion vehicle. In addition, we include information on all tests that were performed throughout the manufacturing process and any corrective actions that had been implemented in each customer's vehicle Delivery Package.

At Lion, we take pride in our ability to adapt to an ever-changing regulatory landscape of varied laws and state requirements. That is another reason why we have opened Experience Centers all across North America. We conduct final assembly, road tests, and pre-delivery inspections of our vehicles at these Centers. Our impressive deployment portfolio is evidence of our ability to produce high-quality vehicles while meeting each state's specifications. Lion vehicles are not only purpose-built to be electric, but they are also purpose-built with superior materials, processes, and quality assurance procedures, all rooted in our desire to exceed client expectations. Lion hopes to stay connected with the Requesting Department after the delivery of your vehicles to allows us to find opportunities to improve our vehicles and best serve your fleet needs.





## REFERENCES

Lion is pleased to provide references from clients who can vouch for the quality of its zero-emission vehicles and services, from sale, to delivery, to technical support. With more than 950 electric school buses delivered, we are committed to delivering safe, clean, reliable buses that comply with state and industry standards.

### Reference #1

<b>Company Name:</b>	Keolis Canada
<b>Contact Name:</b>	Steven Bradley
<b>Contact Telephone Number:</b>	450-585-1210, ext. 1253

### Reference #2

<b>Company Name:</b>	Transdev
<b>Contact Name:</b>	Pierre Zivec
<b>Contact Telephone Number:</b>	514-238-9730

### Reference #3

<b>Company Name:</b>	Twin Rivers Unified School District
<b>Contact Name:</b>	Timothy Shannon
<b>Contact Telephone Number:</b>	916-566-1600, ext. 37000

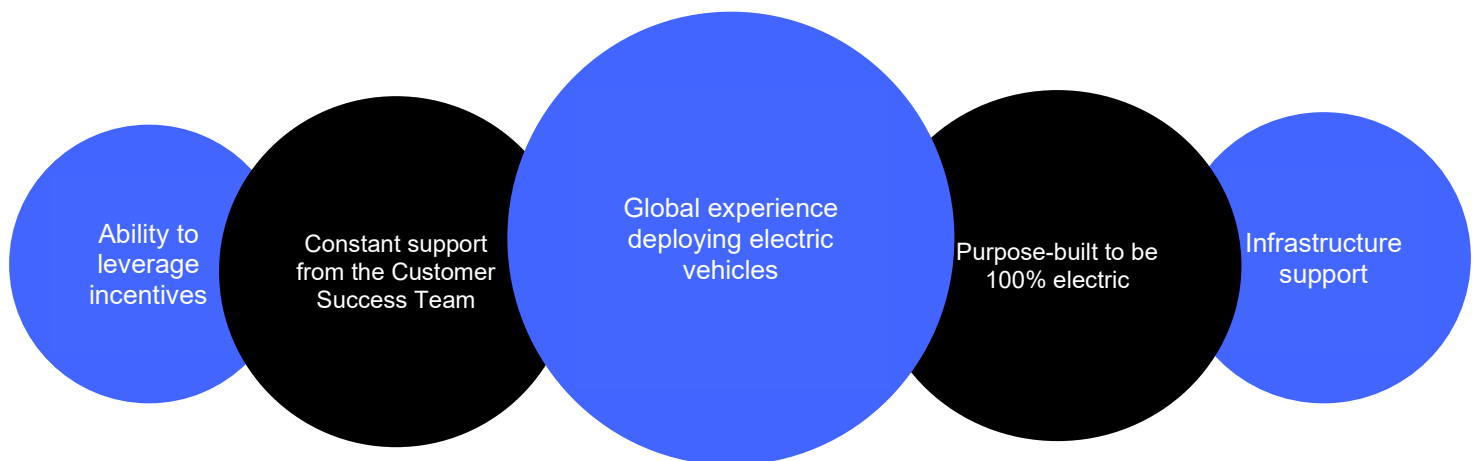


## SUSTAINABILITY

Sustainability is Lion's top priority. Lion is committed to selling environmentally friendly vehicles using sustainable manufacturing practices. All our electric vehicles are emission-free and represent a great asset to meet nationwide climate change goals. To maximize the life of our zero-emission vehicles, and thus further reduce their carbon footprint, Lion's battery packs are climate-controlled to ensure that the battery temperature always remains, on average, at 70 °F, which is the optimal battery environment. Our battery packs are also assembled with a battery management system (BMS) which controls and protects each battery, adjusting to lower and higher energy demands of each module to provide maximum lifespan, minimal degradation, and the longest proven range in the industry.

To further improve the sustainability of each of our vehicles, Lion has integrated an onboard touchscreen as a basic feature on all our electric school buses. Drivers can leverage the touchscreen to control the bus's smart charging ability and to collect operational data. Using the smart charge feature can further reduce the carbon footprint of each Lion vehicle because operators can choose when to charge their vehicles, which minimizes impact on the electrical grid. The onboard touchscreen also serves other purposes, including monitoring power usage, driving efficiency, and battery state. These data can help operators meet their fleetwide sustainability goals by informing them on efficient driving techniques, positive driver behavior, and overall bus kWh/mi performance, which can lead to more mindful driving practices to optimize bus efficiency. The data facilitated by the onboard touchscreen is recorded and can be compiled in reports that can be shared with operators and drivers to promote economical driving behavior. For more information on our touchscreen, please see the **INNOVATION** section of our response on page 15.

Each Lion zero-emission school bus is also equipped with electronic modules that monitor and record data from a variety of vehicle systems, including the motor, batteries, brakes, and electrical components. These modules also track data on driving and vehicle conditions, acceleration, deceleration, speed, direction, location, charging events and status, diagnostic codes, VIN, and other bus characteristics. This kind of data is crucial for fleet operators because it can help inform future adjustments that may need to be undertaken to improve driver behavior, bus performance, and overall fleet efficiency. A more efficient electric fleet means less electricity consumed, translating to minimized grid impact and increased fleet resiliency, which is critical for achieving sustainability in today's world.





## 4<sup>TH</sup> LIFE: BATTERY REPURPOSING AND RECYCLING

As one of the only medium- and heavy-duty zero-emission vehicle manufacturers with years of real-world, on-the-road experience, Lion's strategy for battery disposal and reuse has already been established. Assuming our vehicles' batteries will eventually need to be replaced, the batteries will be able to provide energy in various second-life applications after they are no longer useful as electric school bus batteries. Lion is currently working with our customers and electric utility providers on possible secondary battery uses, such as storage for solar power, emergency response, and backup generators for communications and site operations during power outages. Finally, when a battery can no longer be used because its entire energy retention has been exhausted, we can still recycle the individual battery pack components and materials to reduce waste generation. There are several methods to effectively recycle the distinct elements of every battery. For example, Lion's battery packs are made of steel, copper wire, and metals (lithium, cobalt, magnesium, and nickel), which can all be reused and recycled. At Lion, we take sustainability very seriously as a company and do our part to minimize our waste generation, reuse materials, and promote environmentally friendly practices.

### Carbon Neutrality

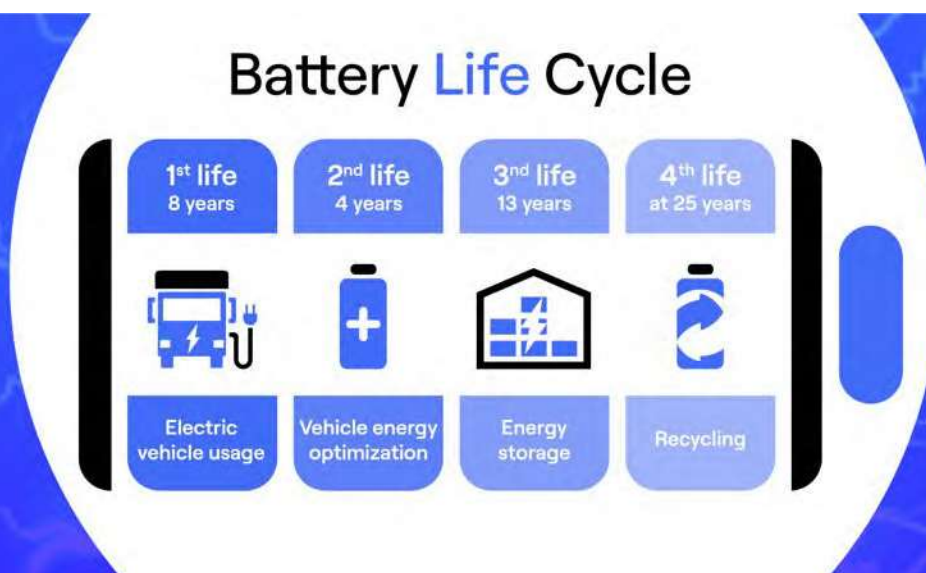
Our electric school buses help fleets reach carbon neutrality and represent the step forward to reduce greenhouse gas emissions to meet each Maine's climate goals.

### Lion's Commitment

Lion aims to eliminate any remaining carbon emissions with additional, quantifiable, real, permanent, and socially beneficial offsets to achieve our company goal of net zero annual carbon emissions.

### Our Actions to Reduce Our Carbon Footprint:

- ✓ Only manufacture zero-emission vehicles
- ✓ Use 100% hydroelectricity to build and power our vehicles
- ✓ Preference for local suppliers that are committed to our carbon neutral mission





## ENVIRONMENTAL, SOCIAL AND GOVERNANCE POLICIES

As the leader in all-electric medium- and heavy-duty vehicle design, manufacturing, and delivery, Lion understands the importance of committing to strong, companywide environmental, social, and governance (ESG) policies to hold our operations and our employees to the highest standards. Lion is not just a model for sustainability in the transportation industry, but also an innovator that strives to be an exemplary corporate citizen to lay the foundation for responsible, accountable, environmentally sound business practices. Our focus on ESG issues is driven by our mission to improve the quality of life for all people and by our desire to support companies and communities looking to prepare themselves for the future.

Among our most important environmental goals include the sustainable sourcing of our zero-emission vehicles' battery materials. Many electric vehicles, including Lion's, use lithium-ion batteries. Lithium procurement has become a contentious issue in recent years due to the environmental and social impacts of lithium extraction. As part of our devotion to corporate responsibility, Lion's goal is to ensure the highest environmental standards for battery material sourcing by implementing optimal business practices across our diverse supply chain and minimizing any potential negative effects on both people and natural resources. We constantly seek innovative solutions to mitigate human and environmental impacts resulting from our business activities and always look to enhance the positive outcomes of our operations. This focus drives Lion to take accountability when it comes to our battery materials, which are some of the most critical components of our zero-emission vehicles. In the near future, we also plan on developing and implementing a Supplier and Procurement Policy to ensure a consistent, formal, and best-practice approach to material sourcing that aligns with our ESG beliefs and will allow us to choose suppliers who share our strict values.



Besides environmental objectives, Lion recognizes that companywide social goals are equally crucial to building a fair, responsible, and accountable workplace for our employees. Lion is committed to facilitating an inclusive and diverse corporate culture that respects and maximizes the contributions of the different backgrounds that our employees bring to Lion for the benefit of our clients, workforce, shareholders, and communities. We believe that diversity, equity and inclusion are critical in building a culture of collaboration, partnership, autonomy, integrity, transparency, performance, and trust. These elements, which are fundamental to attracting and retaining the best talent globally, serve as a foundation to our Diversity, Equity and Inclusion Policy, which we released in early 2022. This Policy creates a common foundation among our staff and leadership around Lion's company values and culture and helps facilitate an environment in which every individual can succeed. Going forward, we plan to set specific social objectives and measures to monitor their implementation to report on our progress annually in our ESG Report.

Lion's governance goals are equally important in our efforts to address all potential ESG issues that we may face. We understand the importance and benefit of having a Board of Directors and senior management composed of highly talented and experienced individuals with regards to the need to foster and promote diversity among our corporate leadership. In support of this goal, when identifying candidates to nominate for election to Lion's Board or appointing senior management, Lion's Nominating and Corporate Governance Committee will consider criteria that promote diversity with regards to gender, ethnicity, and other factors, in addition to criteria that take into account each individual's talent, experience, and skills. Lion's corporate goal is to ensure that women make up at least 30% of directors on our Board of Directors and have at least one minority director by our next annual meeting of shareholders in 2023. In every decision we make, we will consider the level of representation of women and other underrepresented groups on our Board and among our senior management to ensure that our leadership and workforce represent the diverse communities in which we serve.

In summary, among Lion's most notable recent achievements in ESG policies are:



- ✓ Establishing formal oversight of ESG practices and publishing our first ESG Report, including our Diversity, Equity and Inclusion Policy.
- ✓ Calculating our scope 1 and 2, 2020 and 2021 GHG emissions inventories.
- ✓ Helping our customers avoid 10,862 tCO<sub>2</sub>e of GHG emissions.
- ✓ Studying potential long-term plans for the lifecycle of our batteries.
- ✓ Conducting an employee experience and an employment equity survey.
- ✓ Committing to at least 30% female representation on the Board and at least one director who is a minority by Lion's next annual meeting of shareholders to be held in 2023.
- ✓ Launching a Whistleblower line.

Moving forward, Lion will continue to consider the environmental impacts of our operations, set companywide social goals to foster a workplace culture of accountability, and build a more diverse team, especially in management, leadership positions, and at the Board of Directors level. This will ensure that we have the breadth of talent, perspectives, and experiences needed to create a company focused on corporate responsibility and sustainability. Lion will also continue to develop better systems for tracking other corporate data — namely GHG emissions, energy, materials, and water use. As we continue to enhance our capabilities in these areas, we will be in a better position to set ambitious targets and measure our progress toward achieving them transparently. We also plan to increase ESG awareness at all levels within our workforce and develop more comprehensive methods of engaging with our stakeholders so that we can meet the needs of our clients, employees, and the communities in which our electric vehicles are deployed. Corporate responsibility is a continuous process and Lion plans to build on our ESG policies for years to come.



## CONCLUSION

As the leader in medium- and heavy-duty electric vehicles with more than 950 units on the road today and an annual manufacturing capacity of 2,500 vehicles, Lion is prepared to immediately support all the Requesting Department's needs, specifications, and questions throughout your entire electrification journey. Over the past decade, we have built up a team of experts with unparalleled experience who specialize exclusively in all-electric commercial vehicle deployment. Our unmatched delivery record and unique turnkey solution makes us the ideal partner for the Requesting Department on your path to a zero-emission future.

Lion's strongest values include safety, reliability, and the health of the communities we serve. Our electric school buses represent more than just a competitive advantage for fleets by reducing their operational and maintenance costs, they also eliminate criteria pollutant and greenhouse gas emissions, creating a healthier world for our children and drivers. An investment in a Lion zero-emission school bus is an investment in your fleet, your community, and the planet.

**Global Leader in Deploying Electric Vehicles** • Lion's experience deploying medium- and heavy-duty commercial electric vehicles across North America is unparalleled in this industry. We have over 950 vehicles on the road today that have collectively accumulated more than 10 million miles of service and recorded data.

**Turnkey Solution** • Lion is the only electric vehicle manufacturer today to provide a complete turnkey solution at every step of the Requesting Department's transition to zero-emission. The Lion **Energy** team, Lion **Customer Success Team** curriculum, Lion **Beat** telematics software, and Bright **Squad** together make Lion your most valuable partner on your mission to go electric.

**Annual Production Capacity of 2500 Vehicles and Growing** • As demand has increased for our electric vehicles throughout the years, we have scaled our manufacturing capacity to be able to accommodate this growing need. Our factory in Joliet, Illinois, will increase our overall manufacturing capacity by 20,000 electric vehicles-per-annum at full scale, while our battery assembly facility in Mirabel, Quebec, will grant us greater control over our battery supply chain, an advantage few other OEMs enjoy.

**Innovation** • Every Lion vehicle is a technological advancement at the cutting edge of innovation and quality. Our team of 300 engineers is dedicated exclusively to perfecting our zero-emission school bus design. With most other OEMs dividing their focus between their original fossil fuel buses and newly released electric buses, Lion's specialization in this space stands out in the industry, making us the leader in zero-emission innovation.

**Driven to Make a Difference** • Lion puts corporate responsibility and sustainability at the center of everything we do. We are driven to deploy high quality electric vehicles across North America to create a healthier, cleaner, more sustainable world for our children.

**Born to be Electric** • Lion zero-emission school buses are purpose-built from the ground up to be fully integrated electric vehicles. Where most other OEMs manufacture their zero-emission buses starting with diesel chassis, we take the time to build our own chassis and battery packs and design our own proprietary operating software.



**Committed to Fast Deliveries** • Lion’s proven record of deliveries is unmatched in the industry, and we will continue to lead in this arena into 2023. With our growing manufacturing capacity in Quebec and in the United States, we will be even better equipped to make deliveries on time or ahead of schedule.

H.K and Lion would like to thank the State of Maine Division of Procurement Services (“Division”) acting on behalf of the Department of Education (“ Requesting Department”) again for the opportunity to submit our response to RFQ #05A 230327-236, School Bus, All Fuel Types. Our partnership represents the greatest value for the State of Maine Division of Procurement Services (“Division”) acting on behalf of the Department of Education (“ Requesting Department”) and we greatly appreciate your thoughtful consideration of our proposal. We look forward to the chance to work with you to deploy electric school buses that will make a real difference in your fleet operations, your community, and the environment.

The H.K and Lion team remains available to answer any questions should they arise. We will distinguish ourselves through our transparency towards the State of Maine Division of Procurement Services (“Division”) acting on behalf of the Department of Education (“ Requesting Department”) and your procurement officials, our willingness to innovate and tailor our turnkey solutions to your unique needs, and our ability to comply with all established requirements and specifications.

Thank you again for taking the time to read our response about our zero-emission school buses. H.K and Lion eagerly awaits the opportunity to work with the State of Maine Division of Procurement Services (“Division”) acting on behalf of the Department of Education (“ Requesting Department”) to create a healthy breathing environment for our communities for years to come.

In Partnership,

A handwritten signature in blue ink, appearing to read "Henry Knabe III", is written over a horizontal line.

Henry Knabe III – General Manager, H.K Truck Services, Inc







**APPENDIX A - SPECIFICATION SHEET, LINESET AND  
WARRANTIES DOCUMENTS**

# LIONC

## Technical Specifications\*

### WEIGHT & DIMENSIONS

Vehicle Length	473 in.
Vehicle Width	96 – 102 in.
Vehicle Height	122 in.
Wheelbases	278 in.
Gross Vehicle Weight Rating (GVWR)	Up to 31,000 lb
Capacity	Up to 77 passengers

### ELECTRIC POWERTRAIN

Top Speed	60 mph
Maximum Power	250 kW • 335 Hp
Maximum Torque	2,500 Nm • 1,800 ft-lb
Ranges	100 – 125 miles
Battery Capacities	126 – 168 kWh
Motor & Inverter	SUMO MD • Dana TM4
Transmission	Direct drive No transmission
Charging Types	CCS Combo
Level II - Charging Time	
19.2 kW	6.5 – 11 hours
Level III - Charging Time	
24 kW	5 – 9 hours
50 kW	2.5 – 4.25 hours

### CHASSIS

Front Axle	Up to 10,000 lb
Rear Axle	Up to 21,000 lb
Suspension	
Standard	Spring suspension
Optional	Rear air ride
Braking	
Standard	Hydraulic disc brakes
Optional	Air brakes

\* SPECIFICATIONS ARE SUBJECT TO CHANGE.



All-Electric Type C  
School Bus

 **LION ELECTRIC**

[thelionelectric.com](http://thelionelectric.com)



### LION C - BASE SPECIFICATIONS

GROSS VEHICLE WEIGHT RATING (GVWR)	30,000 lbs.
SEAT ROWS	Up to 12 rows
PASSENGER CAPACITY	71 passengers
LENGTH	462 in.
BODY WIDTH	102 in.
HEADROOM	78 in.
TIRE AND RIM	11R22.5
CHARGE PORT	FRONT (STANDARD)
SINGLE SPEED ELECTRIC MOTOR	UP TO 240 H.P. - 350 H.P. (230 kW) / 1200 - 1800 FT-LBS TORQUE
REGENERATIVE BRAKING SYSTEM	STANDARD
RANGE	UP TO 200 km
HIGH VOLTAGE BATTERIES	LITHIUM-ION (NMC)
DC CHARGING	STANDARD
SOUND GENERATOR	STANDARD (0-20 MPH)
12 V BATTERIES	2 X 950 CCA
CONDENSER MODEL	CS-3
SIDE EVAPORATOR MODEL	EZ-5
REAR EVAPORATOR MODEL	EZ-91
DASH EVAPORATOR MODEL	ID-23
BRAKE SYSTEM	HYDRAULIC DISC BRAKES
FRONT & REAR TOW HOOKS	STANDARD
POLYETHYLENE STEPWELL	STANDARD
POLYETHYLENE BATTERY BOX, TRAY AND WHEELHOUSES	STANDARD
COMPOSITE REAR EMERGENCY DOOR	STANDARD
COMPOSITE ABS EXTERIOR BOW CAP	STANDARD
INTEGRATED TRASH CAN	STANDARD
ONBOARD TOUCHSCREEN (TELEMATICS, STATS AND DIAGNOSTICS)	STANDARD
SMART CHARGE	STANDARD
PREHEAT SETTING	STANDARD
CHARGING INDICATORS AS CLEARING LIGHTS	STANDARD
CHARGE READY PILOT LIGHT	STANDARD
ON/OFF MASTER DISCONNECT SWITCHES	STANDARD
EXTERIOR LED LIGHTS	STANDARD
INTERIOR LED LIGHTS	STANDARD
ELECTRIC HORN	STANDARD
MIRRORS	REMOTE & HEATED
FLAPS	STANDARD
VISOR	ACRYLIC, ADJUSTABLE
STOP ARM	LED STOP ARM - CMVSS
REFLECTIVE MARKINGS	PER CMVSS
SCHOOL BUS SIGNS	PER CMVSS
FLOOR	PLYWOOD / BLACK FLOORING
HEATING	AUX HEATING
WINDOWS	TINTED
ROOF	COMPOSITE
BODY PANELS	YELLOW COMPOSITE
RUB RAILS	BLACK STEEL
BRAKES BRAND & MODEL	MERITOR, WABCO
TIRE BRAND	GOODYEAR OR EQUIVALENT
DRIVER SEAT	GREY CLOTH - WITH - ARM REST
PASSENGER SEATS	39 in. - GREY - HIGHBACKS (3-point seatbelts not included)
SEAT BRAND	HSM
TRI-KIT	STANDARD
FIRST AID KIT	STANDARD
FIRE EXTINGUISHER	STANDARD
CHILD CHECK MATE	STANDARD
CUP HOLDER	STANDARD
DRIVER JACKET HOOK	STANDARD
RADIO & 4 SPEAKERS	STANDARD

# Warranty Quick Reference Guide

March 2023

# LIONC



 LION ELECTRIC

# WARRANTY QUICK REFERENCE GUIDE – LIONC ONLY

This list is **NOT ALL INCLUSIVE**. It is an itemized list of the components and/or items used in the Lion vehicle assembly and their warranty coverage. Refer to the *Lion Limited Warranty* for more information.

## BASIC WARRANTY

12 Months or 160,000 km/100,000 mi.  
100% Parts and Labor

Air compressor	Coolant pipes (excl. hoses, collars, clamps, etc.)	Instrument panel	Steering:
Air tanks and air valves	DC/DC converter	Low and high voltage harnesses	- Column
All pumps and tanks	Door latches, hinges and locks	Mirrors	- Motor
Antenna	Fuse box	Pedal and throttle control	- Pump
BTMS (battery temperature management system)	HVAC system	Radio	Suspension assembly (front and rear)
Cab heater and ducts	Horn	Sound generator	Window lift and motor
Charging port	Interior lamps (excl. bulbs)	Speakers	Wiper arm assembly and motor
			Wiring and connectors (400 V)

\*\*Mounting brackets and bolts for above items.\*\*

## OTHER WARRANTIES

Hendrickson steer axle	10 years or 1,600,000 km/1,000,000 mi.
Dana drive axle and shaft	24 months — unlimited mileage
WABCO ABS module, controls and SmartTrac	36 months or 482,803 km/300,000 mi.

## CHASSIS (FRAME RAILS AND CROSSMEMBERS) CORROSION WARRANTY

36 Months — Unlimited Mileage

The warranty applies to holes in the frame rail or the crossmember caused by corrosion. The warranty does not apply to corrosion caused by a frame that has been modified, drilled, or impacted.

## CHARGING COMPONENT WARRANTY

12 Months — Unlimited Mileage

Onboard charger, charging port and cable.

## BREAK-IN ITEMS

90 Days

Inclusions:

Vibrations, squeaks, unusual noises and rattles.

## POWER TRAIN COMPONENT WARRANTY (TM4)

60 Months or 160,000 km/100,000 mi.  
100% Parts and Labor

Applies to the electric motor (SUMO MD), the electric control system (MCU/CO200), and the vehicle management unit (VMU).

Note: Phase and encoder cables have a 12-month, unlimited mileage warranty.

## 400 V BATTERIES

See Standard Limited High-Voltage Battery System Warranty.

<b>NON WARRANTABLE</b>		<b>NON WARRANTABLE</b>	
<b>Wear and Deterioration</b>		<b>Functions or Acts</b>	
ABS tone rings Aluminium, chrome or stainless steel Anti-freeze solution Axle and/or wheel alignment Batteries (12-24 V) Belts Brake discs and pads CB and microphone Doors Discoloration or pitting	Electrical connections Exhaust piping, fitting and clamps Fire extinguisher Filter elements/cab filters Floor cover Flag and flare kit Frame paint (chip or fade) Fuses, breakers and relays Gel coat (cracks) Headlights and light bulbs (other than LED) Hood	Lubricants Mudguards Reflectors Seat covers Suspension pins and bushings Tires Towing equipment (hooks) Vehicle theft alarm Window and windshield Wiper blades Wheels	Any vehicle with an altered odometer Any vehicle that has been altered or modified in a manner unauthorized by Lion Add-on aerodynamic devices All equipment installed out of production Damage due to accidents Diagnostic and road test Environment Impact Improper or insufficient maintenance service Improper operation/misuse Overtime labor Negligence Storage Transport Towing and road calls (other than Lion)

**Note:**

- Lion assumes no responsibility for wear and/or deterioration of parts or change in adjustment as a result of normal service.
- The wheelchair lift component warranty and process are covered directly by the manufacturer BraunAbility.
- Please refer to the *Lion Limited Warranty* document for more detailed information on the warranty and exclusions.
- These lists are NOT all inclusive.

November 2022

# Standard Limited Warranty

High-Voltage Battery System





# Standard Limited Warranty

## High-Voltage Battery System

The Lion Electric Co. ("Lion") warrants to the original purchaser that its High-Voltage Battery System ("Battery") will be free from material defects in material and workmanship under normal use and when properly serviced. Lion agrees to repair or replace defective parts at no additional cost to the purchaser subject to the terms and conditions set forth herein. This is a limited warranty subject to the terms and conditions stated below, and subject to compliance in all respects with the approved use conditions set forth at the bottom of this Standard Limited Warranty.

Lion's Standard Limited Battery System Warranty ("Warranty") applies to the internal Battery components listed below. The Warranty covers 100% of the parts and labour reimbursement (if applicable in accordance with the terms of this Warranty and the purchase agreement). Battery components contained within the main battery enclosure ("Pack") may not be serviced by the purchaser or any third-party maintenance provider, and any such servicing of the Pack by purchaser or any third-party maintenance provider voids the Warranty. Lion technicians will perform all necessary repairs required internal to the Pack.

"Total Throughput" is defined as the energy a battery Pack accumulates and discharges over time. Total Throughput includes <sup>(i)</sup> energy accumulated through charging and regenerative braking, <sup>(ii)</sup> energy discharged while powering the propulsion system and the auxiliary systems and <sup>(iii)</sup> energy accumulated or discharged through the use of a bi-directional charger. The Battery Management System (BMS) tracks and reports total throughput through telemetry at the Pack level.

### Limited Warranty Coverage Periods:

<b>65% of Initial Usable Capacity:</b>	8 years
<b>Maximum Total Throughput per Year:</b>	20,000 kWh per Pack

The warranted usable capacity at eight (8) years will be at least 65% of initial usable capacity of the Pack, based on a maximum Total Throughput per year of 20,000 kWh per Pack.

# Standard Limited Warranty

## High-Voltage Battery System

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The Battery is defined as the main high-voltage energy storage system and consists of the following:

- Battery modules and components internal to the Pack
- Battery management system (BMS) and firmware
- Cooling system components internal to the Pack
- Pack enclosure
- All electrical connections and components internal to the Pack
- Manual Service Disconnect (MSD)

A warrantable defect may be addressed by software updates, replacing internal parts, or replacing assemblies. These replacement parts may be identical or equivalent substitutes. Repairs may include factory reconditioned components that have an energy capacity at least equal to that of the original Battery before the failure occurred. Where applicable, Lion reserves the right to upgrade parts or assemblies with the latest design.

Lion retains ownership of any components that are removed and/or replaced, including any system components that have reached the end of their service life.

The Warranty does NOT cover malfunction, failure, or loss of capacity of the Battery due to the following events induced or caused by the purchaser or other third party:

- Alteration or modification of any Battery part or assembly or combination of the Battery
- Misuse or negligent use of the Battery, including but not limited to, purchaser's or a third party's failure to follow Lion operating guidelines contained in the manual made available by Lion
- Battery was opened
- Exposing the vehicle to ambient temperatures above 140°F (60°C) or below -22°F (-30°C) for more than 24 hours at a time, if not connected to a charging station
- Exposing the Battery to direct flame
- Immersion of the Battery in liquid or infiltration of liquid in the Battery
- Intentional or accidental collision
- Unauthorized use or operation outside of the terms and conditions of the applicable purchase contract
- Physically damaging the Battery, or intentionally attempting, either by physical means, programming, or other methods, to extend or reduce the life of the Battery
- Unauthorized or improper maintenance and repair by non-Lion personnel
- Intentional acts of destruction, tampering or vandalism
- Acts of nature
- The selection of non-approved charging equipment can result in voided warranty coverage of many high-voltage components on the vehicle (see appendix)

# Standard Limited Warranty

## High-Voltage Battery System

Lion administers the warranty process and all warranty claims are at the sole and absolute discretion of Lion.

In connection with any claim brought under this limited warranty, the purchaser must provide the failed component along with the proper documentation and warranty claim form. Lion will perform an inspection of the failed component and supporting documentation to make a claim determination. Lion will not provide any compensation, labour, repairs, or replacement part to the purchaser without the above documentation.

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, LION EXPRESSLY DISCLAIMS ANY OTHER WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, AS TO THE QUALITY OR PERFORMANCE OF THE BATTERIES AND/OR THE PACKS.

THIS STANDARD LIMITED WARRANTY IS SUBJECT TO COMPLIANCE IN ALL RESPECTS DURING THE ENTIRE APPLICABLE WARRANTY PERIOD WITH THE BELOW APPROVED USE CONDITIONS. IF THE ORIGINAL PURCHASER DOES NOT COMPLY IN ALL RESPECTS WITH THE BELOW APPROVED USE CONDITIONS DURING THE ENTIRE APPLICABLE WARRANTY PERIOD, THEN THIS STANDARD LIMITED WARRANTY SHALL NOT APPLY.

### Approved use conditions

The Batteries shall be used in accordance with the Purchase Agreement between the Customer and Lion, as well as in accordance with the following use conditions:

<b>Storage State of Charge Range</b>	When not installed in a vehicle, Batteries shall be stored between 15% and 30% State of Charge
<b>Storage Temperature Range</b>	14°F (-10°C) to 86°F (30°C)
<b>Storage Time</b>	90 days maximum

# Standard Limited Warranty

## High-Voltage Battery System

### Appendix

## Approved Charging Equipment manufacturers

Connecting a Lion vehicle to a charging point that does not appear on the list attached to the present warranty may void the coverage of the present warranty. Lion highly recommends selecting a charger from the below list of compatible charging equipment Manufacturer. Otherwise, Lion cannot guarantee full compatibilities and functionalities for a non-listed charging OEM.

Although, Lion understands the need for customers to use public charging infrastructure and recommends the use of all major public charging network that use Tier 1 charging OEMs as reflected in the appendix.

The attached list may be amended and varied from time to time at Lion's discretion by notification to the customer or by publication on its website [www.thelionelectric.com](http://www.thelionelectric.com). All requests of compatibility and interoperability require Lion to conduct an engineering project in order to certify the use of a new charging point. Timeline for certification will be established on a case-by-case basis for each request and may be at the cost of the client.

# Standard Limited Warranty

## High-Voltage Battery System

### Appendix

## List of Compatible Chargers

### ABB

- Terra DCWB 24 kW 1ph (208V/240V input voltage)
- Terra DCWB 24 kW 3ph (480V input Voltage)
- Terra 54, 50 kW DC
- Terra 94, 90 kW DC
- Terra 124, 120 kW DC
- Terra 184, 180 kW DC
- Terra HP 175/350 kW

### Blink

- IQ200, 19.2 kW AC

### BTC Power

- 100 kW DC Fast Charger, Model L3R-100-480

### ChargePoint

- Express 250, 62.5 kW DC

### ClipperCreek

- HCS-50, 9.6 kW AC

### Delta

- Wallbox 24 kW DC

### FLO | AddÉnergie

- Smart DC 50 kW, \* compatible with LionC and Lion6 vehicles only.
- FLO Home G5, 7.2 kW AC
- FLO CoRE+ Max 19.2 kW AC

### Nuvve

- PowerPort, 19.2 kW AC
- DC Heavy Duty Charging Station, 60 kW DC

### Tritium

- RT50, 50 kW DC, \* compatible with LionC and Lion6 vehicles only.

## List of Compatible Charging Networks:

- Electrify Canada
- Electrify America
- ChargePoint
- FLO | AddÉnergie
- Electric Circuit
- Énergie NB Power

## Chargers Currently Undergoing Tests for Compatibility:

### Blink

- 30 kW DC

### Power Electronics

- 24 kW DC
- NB Depot 150 kW DC

### Siemens

- SiCharge UC, modular charging system

### Tellus Power Green

- 30 kW DC \* compatible with LionC and Lion6 vehicles only.
- 60 kW DC

**Note:** AC charging stations are compatible with Lion vehicles that have an onboard charger.