

NOTICE TO BIDDERS - GENERAL TERMS AND CONDITIONS

The Town of Peterborough, New Hampshire wishes to engage the services of a qualified private firm to provide the Town with a new, year 2003 Aerial Ladder Truck. The firm must be lawfully engaged in the service of providing and delivering fire vehicle in the State of New Hampshire. Performance Specifications and Design Specifications are provided later in this Bid Package.

Bids must be received by the Town Clerk no later than 2:00 PM on Sept 23, 2003 from interested firms, to be eligible for consideration by the Town. Each Bid shall be submitted in a sealed envelope which is clearly marked with the Bidder's name, address and telephone number and the words, "Ladder Truck Bid".

Each Bid shall be accompanied by a certified check for the Bid Deposit and shall be subject to the conditions provided in this Bid Package.

The amount of such Bid Deposit shall be ten percent (10%) of the total bid and made payable to the Town of Peterborough, New Hampshire.

The successful contractor will be responsible for providing the Town with separate Payment and Performance Bonds at the time of contract execution. Each bond shall be in the amount of 100% of the contract price.

PREPARATION OF BID:

Bids shall be submitted on the forms provided and must be signed by the Bidder or his authorized representative. The person signing the Bid shall initial any corrections to entries made on the Bid forms. Bidders must quote on all items appearing on the Bid forms unless specific directions in the advertisement, on the Bid form or in the special provisions allowed for partial Bids. Failure to quote on all items may disqualify the Bid. When Bids on all items are not required, Bidders shall insert the words "no Bid" where appropriate.

Alternative Bids will be considered, unless otherwise stated, only if the alternate is:

- (1) Described completely, including, but not limited to, sample(s), if requested, and specifications sufficient so that a comparison to the request can be made; and,
- (2) Submitted as part of the base Bid response, i.e. it shall not be a separate document which could be construed as a second Bid.

Unless otherwise stated in the Request for Bid (RFB), the Bidders agree that the Bid shall be deemed open for acceptance 10 days after the close of business of the 2004 Town Meeting held in March.

Any questions or inquiries must be submitted in writing, and must be received by the Fire Chief no later than seven (7) calendar days before the RFB due date to be considered. Any changes to the RFB will be provided to all Bidders of record.

The Bidders shall not divulge, discuss or compare his Bid with other Bidders and shall not collude with any other Bidders or parties to a Bid whatever. (Note: No premiums, rebates or gratuities will be permitted either with, prior to, or after any delivery materials are allowed. Any such violation will result in the cancellation and/or return of materials, as applicable, and the removal from Bid List).

The name of manufacturer, trade name, or catalog number mentioned in this RFB is for the purpose of designating a minimum standard of quality and type. Such references are not intended to be restrictive, although specified color, type of material and specified measurements may be mandatory. Bids will be considered for any brand, which meets or exceeds the quality of the specifications listed. On all such Bids, the Bidders shall specify the product they are proposing and shall supply sufficient data to enable a comparison to be made with the particular brand or manufacturer specified.

Failure to submit the above may be sufficient grounds for rejection of the Bid. When samples are required, they must be submitted free of cost. They will not be returned unless otherwise specified.

Items left for demonstration purposes shall be delivered and installed free of charge and shall be removed by the vendor at no cost to the Town. Said demonstration vehicles shall not be offered to the Town as new equipment unless mutually agreed to.

The Bidder and/or the underlying vendor may be required to supply proof of compliance with Bid specifications. When requested, the Bidder must supply the Town with certified test results or certificates of compliance within three (3) business days of the date of the request. Where none are available, the Town may require independent laboratory testing. All costs for such testing, certified test results or certificates of compliance shall be the responsibility of the Bidder.

Unless otherwise stated, all prices are F.O.B.: Destination. No charge for packing or drayage will be allowed. All deliveries are to be pre-paid; C.O.D.'s will not be accepted.

SUBMISSION OF BIDS:

Bids must be submitted to the Town Clerk, and on the forms provided unless otherwise specified. Bids must be typewritten or printed in ink. Bids must be mailed or delivered in person. Bids that are faxed or e-mailed will not be accepted.

WITHDRAWAL OF BIDS:

Bids may be withdrawn prior to the opening date and time upon written, faxed, emailed or telegraphic request of the Bidders to the Purchasing Agent. Negligence on the part of the Bidders in preparing his Bid shall not constitute a right to withdraw a Bid subsequent to the Bid opening. Bids may not be withdrawn on or after the opening date.

BIDDERS INTERESTED IN MORE THAN ONE BID:

If more than one Bid is offered by any one party, or by any person or persons representing a party, all such Bids shall be rejected. A party who has quoted prices to Bidders is not thereby disqualified from quoting prices to other Bidders or from submitting a direct Bid in its own behalf.

RECEIPT AND OPENING OF BIDS:

Bids shall be submitted to the Town Clerk prior to 2:00 PM on Sept 23, 2003. Bids received after the time so indicated shall be returned unopened. All Bids shall be opened in public at 7:00 PM on September 23, 2003 at a meeting of the Board of Selectmen at which time the Town Clerk or his/her designee shall read aloud each Bidder's name and their respective total bid amount.

BID RESULTS:

All Bids received shall be considered confidential and not available for public review until after successful Bidder has been selected.

NO TELEPHONE REQUESTS FOR RESULTS WILL BE ACCEPTED OR GIVEN.**TIE BIDS:**

When identical Bids are received, with respect to price, delivery, financial resources, experience, ability to perform and quality, award may be made by a toss of a coin, with the following exception: When a tie Bid exists between a local (a business establishment within Town limits) Bidder and an out-of-town Bidder, preference will be given to the local Bidder. Any Bidder having a local agent prior to the date of advertisement of this RFB who is a bona fide resident of the Town is considered a local Bidder. If a tie Bid exists between two Local Bidders, or two out-of-town Bidders, the decision may be made by a toss of a coin.

AWARD OF CONTRACT:

Any contract entered into by the Town shall be in response to the chosen Bid and subsequent discussions. It is the policy of the Town that contracts are awarded, among other considerations, only to responsive and responsible Bidders. In order to qualify as responsive and responsible, a prospective Bidder/vendor must meet the following standards as they relate to this request:

- Have adequate financial resources for performance or have the ability to obtain such resources as required during performance;
- Have the necessary experience, organization, technical and professional qualifications, skills and facilities;
- Be able to comply with the proposed or required time of completion or performance schedule;
- Have a demonstrated record of satisfactory performance;
- Adhere to the specifications of this Bid and provide all documentation required of this Bid.

The contract will be awarded to a responsive and responsible Bidder based on the qualifications and experience of the Bidder; the quality of the equipment, product, and service to be provided; the Bidder's ability to provide ongoing technical support; the Bidder's timeframe for providing the equipment, product, service; and the Bidder's price. The Bidder selected will be the most qualified and not necessarily the Bidder with the lowest price.

The Town of Peterborough reserves the right to waive any formality, informality or information in the Bids submitted and the right to reject any or all Bids at its discretion and to accept the Bid which will be in the best interest of the Town, or to purchase on the open market if it is considered in the best interest of the Town to do so. In case of error in the extension of prices, the unit prices proposed shall govern and the unit prices in writing shall take precedence over the unit prices in figures. Also, in the event of a discrepancy between the total of the items and the lump sum total stated, the total of the items shall govern.

CANCELLATION OF AWARD:

The Town reserves the right to cancel the award without liability to the Bidder, except for the return of the Bid bond, at any time before a contract has been fully executed by all parties and is approved by the Town.

REQUIREMENTS OF SURETY BONDS:

Within fifteen (15) days of the execution of the agreement, the successful Bidder shall furnish to the Town a Performance Surety Bond and a Payment Surety Bond, each in the amount of this contract, which bonds shall be issued by an admitted bonding company licensed to do business in the State of New Hampshire within an A.M. Best Company rating of "A+" or better. Said bonds shall be delivered to the Town prior to the commencement of actual work and shall be in a form satisfactory to an approval by the Town's Attorney. These bonds shall secure performance and/or payment of all the Bidder's obligations under this agreement.

EXECUTION OF AGREEMENT:

The successful Bidders shall sign (execute) the necessary agreements for entering into the contract and return such signed agreements to the Town, along with the fully executed surety bonds, within ten (10) calendar days from the date mailed or otherwise delivered to the successful Bidder.

APPROVAL OF AGREEMENT:

Upon receipt of the agreement and surety bonds that have been fully executed by the successful Bidder, the Town shall complete the execution of the agreement in accordance with local laws or ordinances and return the fully executed agreement to the Contractor. Delivery of the fully executed agreement, along with a Notice to Proceed and a Town purchase order, to the successful Bidder shall constitute the Town's approval to be bound by the successful Bidder's Bid and the terms and conditions of the agreement.

FAILURE TO EXECUTE AGREEMENT:

Failure of the successful Bidder to execute the agreement and/or furnish acceptable surety bonds within ten (10) calendar days from the date mailed or otherwise delivered to the successful Bidders shall be just cause for cancellation of the award and forfeiture of the Bid bond, not as a penalty, but as liquidation of damages to the Town.

DISQUALIFICATION:

Awards will not be made to any person, firm or company in default of a contract with the Town of Peterborough, the State of New Hampshire, or the Federal Government.

SAFETY DATA SHEET (Right to Know):

Any successful Bidder who receives an order resulting from this RFB agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to RSA 277-A when deliveries are made. The successful Bidder agrees to deliver all containers properly labeled pursuant to RSA 277-A. Failure to submit an MSDS and/or label on each container will place the successful Bidder in noncompliance with that purchase order. Failure to submit MSDS and/or labels on each container may result in civil or criminal penalties, including Bid debarment and action to prevent the successful Bidder from selling said substances, or mixtures containing said substances within the Town. All successful Bidders furnishing substances or mixtures subject to RSA277-A, are cautioned to obtain and read the law referenced above.

PATENT PROTECTION:

The successful Bidder agrees to indemnify and defend the Town of Peterborough from all claims and losses resulting from alleged and actual patent infringements and further agree to hold the Town of Peterborough harmless from any liability arising under RSA 382-A, 2-312 (3). (Uniform Commercial Code).

OWNERSHIP OF REPORTS:

All data, materials, plans and documentation prepared pursuant to any contract between the Town of Peterborough and the successful Bidder shall belong exclusively to the Town.

ASSIGNMENT PROVISION:

The successful Bidder hereby agrees that it will assign to the Town of Peterborough all causes of action that it may acquire under the anti-trust laws of New Hampshire and the United States as the result of conspiracies, combination of contracts in restraint of trade which affect the price of goods or services obtained by the Town under this contract if so requested by the Town of Peterborough.

DELIVERY:

Deliveries are to be made only to the department or division indicated on the order and in accordance with accepted commercial practices, without extra charge for packing or containers. Deliveries, which do not conform to the specifications or are not in good condition upon receipt, shall be replaced promptly. Deliveries shall be inside the building, and accepted weekdays between the hours of 8:30 AM and 3:30 PM unless otherwise stated. Delivery arrangements must be made with requesting department prior to delivery.

INVOICING:

Unless otherwise stated, invoices are to be submitted in duplicate upon delivery or pickup to the user department or division. The invoice must include an itemization of all items.

PRICING:

Unless otherwise specified all prices listed are firm for the term of the contract. All prices should include all labor and material costs, and any discounts offered.

AUDIT:

It is the responsibility of the successful Bidder to make available at his place of business upon demand, all price lists and other records pertaining to purchases made under the contract for the purposes of audit by the Town of Peterborough.

INSPECTION & EVALUATION:

The Town of Peterborough reserves the right to inspect the successful Bidder's facilities during operating hours to determine that the level of inventory is adequate for the Town's needs. The conditions and operations of the facility shall be taken into consideration in making the award of this contract.

GUARANTEES & WARRANTY:

All parts and labor related to agreements must be guaranteed and include a warranty. If any work is unable to be guaranteed, the successful Bidder must inform the Town, in writing, prior to the delivery of an item or any work being performed. Non-guaranteed work must be offered at a discount rate from the Bid prices. **Inspection, testing and final determination of non-warranty work shall be performed at no cost to the Town.**

FORCE MAJEURE:

Neither party shall be liable for any inability to perform its' obligations under any subsequent agreement due to war, riot, insurrection, civil commotion, fire, flood, earthquake, storm or other act of God.

NOTIFICATION:

Notification of the parties shall be considered to have been constructively received when it is mailed via the United State Postal Service or delivered in hand to the parties as stated in the contract.

SEVERABILITY:

If any of the GENERAL TERMS AND CONDITIONS is held to be invalid or unenforceable, it will be construed to have the broadest interpretation which would make it valid and enforceable under such holding. Invalidity or the inability to enforce a term or condition will not affect any of the other GENERAL TERMS AND CONDITIONS.

SPECIAL TERMS AND CONDITIONS**INTENT**

It is the intent of this Fire Department to secure a new, or demonstrator, custom-built year 2003 Aerial Ladder Truck to withstand the continuous use encountered in the emergency fire fighting service. Bids are requested from responsible manufacturers who are engaged in the manufacture and sale of fire vehicle. All parts not specifically mentioned herein, but which are necessary in order to furnish a complete fire vehicle, shall be furnished and shall conform to the best practices of the fire protection industry.

ABILITY TO CONSTRUCT / SERVICE:

Each Bidder shall furnish satisfactory evidence of his / her ability to construct the vehicle specified by providing a list of at least five (5) local references where examples of a fire vehicle similar to the vehicle specified, can be viewed. The Bidders shall state the location of the factory where the vehicle is to be built and also that he / she is in a position to render prompt service and replacement parts for said vehicle.

Bidders must maintain a full service, factory authorized repair facility capable of, but not limited to; pump repair / overhaul, water tank repair / replacement, major bodywork, sheet metal fabrication, electrical system repair / replacement, and other major repair work, within a 150 mile radius of the Town of Peterborough. The facility must be staffed by full time factory trained and certified service technicians. The Bidders shall state the location of this facility, subject to inspection by personnel authorized by the Chief of the Department, in the Bid.

Permission to keep or store the vehicle in any building owned or occupied by the Town or its use by the Department during the above specified period with the permission of the Bidders shall not constitute acceptance.

LIABILITY:

The successful Bidders shall defend any and all suits and assume all liability for the use of any patented process, device or article forming a part of the vehicle or any appliance furnished under the contract.

WARRANTY:

The following minimum warranties shall be furnished:

- 1) Components Manufactured by Vehicle Manufacturer: 2 Years
- 2) Modular Body Structure: 20 years
- 3) Frame: Lifetime
- 4) Stainless Steel Plumbing Components: 10 Years
- 5) Paint: 10 Years
- 6) Corrosion: Lifetime
- 7) All components manufactured by other suppliers shall maintain the warranty supplied by those suppliers
- 8) Aerial Ladder Structure- 20 years.

Warranties shall commence upon acceptance of the vehicle. Each Bidder shall provide all warranty documentation with the submission of their Bid.

TOWING:

In the event of mechanical failure to the point where the vehicle is unable to be driven (as determined by mutual agreement between the Town's Fire Chief and the dealer's representative), while on warranty, the successful Bidder shall reimburse the Town of Peterborough 100% of the towing cost.

DELIVERY:

1) It shall be the responsibility of the successful Bidder to deliver the vehicle to Peterborough, New Hampshire upon the completion of the construction. The delivery location shall be determined by the Town Fire Chief. Vehicle must be fully operable at time of delivery. A road test of not less than 500 miles must have been performed by the dealer prior to delivery to ensure that all driveline components are operating properly. Cab and chassis manufacturer's recommended service must have been completed.

2) The successful Bidder shall provide a minimum of three (16) hours of training for designated Town Fire Department personnel on proper operation and maintenance of the vehicle at no additional cost to the Town. Training shall be provided in the Town of Peterborough at a time acceptable to the Fire Chief, and will include weekend days.

EXCEPTION TO SPECIFICATIONS:

The body specifications detailed by this RFB shall be strictly adhered to. Exceptions will be considered only if they are equal to or superior to that specified and provided they are listed and fully explained on the attached Specifications Exception Form. The Fire Chief reserves the right to refuse any specific exceptions. Exceptions to interior or exterior compartments must be documented by detail drawings supplied by Bidders. Exceptions listed are to refer to specification page number and paragraph. Bids taking total exception to specifications will not be accepted. In order to ensure compliance to specifications, a comprehensive pre-delivery inspection of the vehicle will be performed by the Peterborough Fire Chief and Fire/Rescue staff. Deviations will not be tolerated and will be cause for rejection of vehicle unless they were originally listed in Bidder's Bid or approved in writing by the Fire Chief.

INSURANCE CERTIFICATE:

The successful Bidder shall provide an insurance certificate(s) naming the Town of Peterborough as an additional insured for the period that the vehicle is in transit from the Successful Bidder's location to the Town.

EVALUATION OF BIDS:

For the purpose of evaluating the Bids and securing funding, it is mutually agreed that the Bid price shall remain firm and open for acceptance until ten (10) days after the close of Town Meeting in March 2004.

PAYMENT / TAX:

Payment will be due upon completion of the delivery and acceptance of the vehicle.

WORK COMPLETION DATE:

The successful Bidder is to complete the construction and delivery of the vehicle at the earliest possible date upon delivery of chassis. All Bids will state the number of days required to complete the vehicle from the time the chassis is delivered, as well as the number of days required for the delivery of the cab and chassis to the Bidder. Failure to meet this delivery time will result in liquidated damages being paid by the successful Bidder to the Town in the amount of \$1,000.00 per week, or any part thereof, for delay beyond this period of time.

DRAWINGS:

The evaluation of the Bids shall be on many factors: three (3) of which shall be design, engineering reliability, and completeness of drawings. No Bidder's Bid shall be considered unless complete engineering drawings are submitted with the Bid package.

The submission of these drawings is in addition to production of working drawings, which must be submitted to the Town for approval prior to construction. The engineering drawings will allow the Fire Department to fully evaluate the Bidders Bid, design, engineering and drawing quality in comparison to the Bids of other Bidder's and to the Town's specifications.

The Bidder's engineering drawings shall be produced utilizing computer-aided-design (CAD) technology and equipment. This will ensure critical tolerance and detail only available with CAD equipment. The blueprints shall be on "D" size paper, 36" x 24" in size, and views must be 1/2" = 1'-0" scale. This will allow the Town the ability to compare drawings of all manufacturers on an equal basis. The blueprints will show the Street Side, Curb Side, Rear View, Front View and Plan View including dimensions. The blueprints shall be completed only by the vehicle manufacturer, and must be exactly to Town's specifications. **Submission of "similar to" blueprints or statements referring to "later submission of blueprints after award of contract" will cause such Bids to be automatically rejected.** Scaled drawings that show each side, front, rear and top views, location and size of compartments, lights, overall dimensions of body and locations of major systems must be provided. This information shall be submitted after execution of the Contract and no less than 2 weeks prior to the pre-construction conference.

Successful Bidders shall not start construction until one (1) of two (2) identical sets of plans has been approved, and signed by the Fire Chief and returned. The second set shall remain with the Fire Chief.

ELECTRICAL SCHEMATICS:

The efficient maintenance and service of the vehicle is of prime importance to the Town. To properly maintain the vehicle electrical system, the vehicle must be constructed with the finest in electrical materials and components.

To maintain the vehicle electrical systems, the Town must be provided with the instructional manuals, complete electrical information and schematics on the vehicle.

The electrical information shall be provided as follows:

Individual 8-1/2" x 11" computer drawn schematics for each 12 and 120-volt electrical circuit shall be provided. Each plan shall note the circuit numbers, wire sizes, switches, breakers and terminals for each particular circuit and appliance.

MANUALS AND DOCUMENTATION:

The manufacturer shall provide with the vehicle on delivery, two (2) complete delivery manuals. These manuals shall be 3-ring notebook type binder, with reference tabs for each section of the vehicle. Within each, the following section shall be:

Detailed Lubrication Charts

Complete As-Built Detailed Wiring Diagram sets for the chassis and body.

Complete Parts Lists with Parts Numbers for the chassis and body.

Individual component manufacturer instructions and parts manuals.

Service Manuals.

Operator's Manuals.

Complete Sets of Vehicle Blueprints.

Warranty forms for all major components.

Warranty instructions and format to be used with warranty obligations.

Normal routine service forms and publications for body components.

Technical publications on training and instruction for major components.

Warning notices and safety related section for personnel protection.

UL Certification

BIDDERS DOCUMENT CHECKLIST

The following is a list of items, which must be included in the Bid documents, submitted by each Bidder:

1. Bid Bond (10%)
2. Bid Sheet
3. Specifications Exception Form
4. Business and Taxpayer Identification Information Form
5. Town of Peterborough Indemnification Agreement
6. Specific Terms, Conditions and Vehicle Specifications Indicating compliance/non-compliance.
7. List of Five (5) References
8. Bidder's Vehicle Specifications
9. Complete Engineering Drawing (CAD)
10. Blueprints Showing Street Side, Curb Side, Rear view, front view and plan view (to include dimensions)
11. Warranty Documents for the following:
 - a) Complete Vehicle Warranty
 - b) Structural Warranty
 - c) Frame Warranty
 - d) Plumbing Components Warranty
 - e) Paint and Corrosion Warranty

The successful Bidders must provide the following documentation prior to contract signing

1. 100% Payment Bond
2. 100% Performance Bond
3. Insurance Certificate naming the Town of Peterborough as additional insured with respect to general and umbrella liability.

TOWN OF PETERBOROUGH, NEW HAMPSHIRE

SPECIFICATIONS EXCEPTION FORM

In the interest of fairness and sound business practice, it is mandatory that you state any exceptions taken by you to our specifications.

It is not the responsibility of the Town of Peterborough to ferret out information concerning the materials, which you intend to furnish.

If your bid/quotation does not meet all of our specifications you must so state in the space provided below (which may be continued on a separate attachment, if necessary):

Bids on equipment, vehicles, supplies, service and materials not meeting specifications may be considered by the Town, however, all deviations must be listed above. If your bid does not meet our specifications, and your exceptions are not listed above, the Town of Peterborough may claim forfeiture on your bid bond, if submitted.

I DO meet specifications

Signed: _____

I DO NOT meet specifications as listed in this bid; exceptions are in the space provided.

Signed: _____

Failure to submit this form with your Bid/RFB response will result in your Bid being rejected as unresponsive.

TOWN OF PETERBOROUGH, NEW HAMPSHIRE
BUSINESS AND TAXPAYER IDENTIFICATION INFORMATION (T I N)

1. THIS BUSINESS IS A: (Please check one)

- Individual
- Sole Proprietorship
- Partnership
- Non-Profit Entity
- Other, Please Describe: _____

2. LICENSED OR OTHERWISE AUTHORIZED TO DO BUSINESS BY THE STATE
OF: _____

3. TAXPAYER IDENTIFICATION NO. (TIN): () () - () () () () () () ()
OR
SOCIAL SECURITY NUMBER: () () () - () () - () () () () ()

LEGALLY ISSUED IN THE NAME OF: _____

DOING BUSINESS AS (D/B/A): _____

ADDRESS: _____

TOWN /TOWN, STATE, ZIP: _____

NOTE:

Checks in payment of obligations by the Town will be made payable to your legally issued name unless you state a D/B/A (doing business as). Federal Tax reporting, if required, will also be in your legal name.

Failure to provide a Taxpayer Identification Number (T.I.N.) will subject you to a 31% Federal Back-Up Withholding.

Failure to submit this form with your Bid response will result in your Bid being rejected as unresponsive.

TOWN OF PETERBOROUGH, NEW HAMPSHIRE**THE FOLLOWING INDEMNIFICATION AGREEMENT AND OTHER TERMS
SHALL BE, AND ARE HEREBY, PROVISIONS OF ANY CONTRACT**

The Company (Successful Bidder) agrees to defend and save harmless the Town of Peterborough, its officers, agents and employees (collectively "the Town") against all claims, demands, payments, suits, actions, recovery, and judgments of every kind and description arising out of the performance of this Agreement, for personal injury or property damage brought or recovered against the Town by reason of any negligent action or omission of the Company, its agents, or employees. This indemnification shall survive the expiration or early termination of this contract.

INSURANCE

The Company shall carry Public Liability Insurance in the amount of \$1,000,000 including protection for bodily injury and property damage with a combined single event/ occurrence limit of \$3,000,000.

The Company shall also maintain Automobile Liability Insurance providing limits of \$3,000,000 per occurrence, and the Company shall provide Worker's Compensation Insurance. The Worker's Compensation Insurance shall provide coverage under the Compensation Act of New Hampshire and shall provide employer's liability insurance in the amount of \$100,000.

Certificates of Insurance shall be supplied to the Town of Peterborough by the Company detailing the above coverage prior to commencement of the work. This certificate will be issued by a carrier authorized to do business within the State of New Hampshire.

LIQUIDATED DAMAGES

Failure by the Company to complete all work prior to the date specified in the Contract shall be cause for a payment from the Company on request of the Assessor in the amount of \$1,000.00 per week, or any part there of, beyond the specified date of completion. For the purpose of this liquidated damages only, completion of all work is defined as delivery and satisfactory acceptance by the Fire Chief of the vehicle in compliance with the agreed upon specifications.

These liquidated damages, if applied, shall be deducted from the contract price. Delays occasioned by war, strike, explosion, an order of court of competent jurisdiction, or acts of God, are exceptions.

CHANGES AND SUBLETTING OF CONTRACT

The Company shall not change, modify, assign, transfer or sublet the Company, or any interest part therein without first receiving written approval from the Town and bonding company. It shall be mutually agreed and understood that said consent by the Town shall in no way release the Company from any responsibility or liability as covered in these specifications and contract.

ACKNOWLEDGED AND ACCEPTED:

COMPANY: _____

TAXPAYER IDENTIFICATION NUMBER: _____

AUTHORIZED SIGNATURE: _____

PRINTED NAME: _____

ADDRESS: _____

TELEPHONE: _____

TOLL-FREE NUMBER: _____

FAX NUMBER: _____

E-MAIL ADDRESS: _____

Failure to submit this form with your Bid will result in your Bid being rejected as unresponsive.

PERFORMANCE REQUIREMENTS AND DESCRIPTIVE MATERIAL

Note: If there is a conflict between the Performance Requirements and Descriptive Material Section and the Bid Specifications, the Performance Requirements and Descriptive Material Section shall take priority.

Unless otherwise noted, all specifications at MAXIMUM GVW. The Town of Peterborough requests two Bids from each vendor. One for a "new" unit and one for a "demonstrator" as described in section 32 below.

1) Performance Requirements/specifications

- 1) Unit will be manufactured to meet or exceed all NFPA applicable standards at the time of delivery. Ancillary equipment, such as but not limited to; ground ladders, generators. Wiring and piping will be required to meet all applicable NFPA standards. Any deviation will require a waiver in writing from the Town of Peterborough on each non-compliant item. Small equipment items required by NFPA and not listed in this document will not be considered part of this bid. Comply Yes / No
- 2) Unit to be a rear mount aerial ladder of at least 100 feet in length. Yes / No
- 3) Aerial stabilizer system not to exceed 12 feet in width and be extendable criss-cross under slung design. Yes / No
- 4) Height: Overall travel height not to exceed 11 feet 4 inches, on delivery unloaded. Comply Yes / No
- 5) Length: Overall length not to exceed 40 feet. Comply Yes / No
- 6) Width: Overall width not to exceed 8 feet 6 inches.
- 7) Compartment Space: A minimum of 300 Cubic feet of compartment space, not including dunnage area. Preference to roll up doors where practical. Comply Yes / No
- 8) Weight: Not to exceed 60,000 pounds fully loaded, including 7 firefighters and 6000 pounds of equipment, in addition to all equipment included with this bid. Comply Yes / No
- 9) Wheelbase: Not to exceed 230 inches. Comply Yes / No

- 10) Turning Radius: Not to exceed 32 feet. Supplemental engineering data must accompany the bid. Comply Yes / No

- 11) Cramp Angle: 45 degrees or greater. Comply Yes / No

- 12) Ladder Construction: Aluminum, 500 Lb minimum tip load all angles no water flowing. Comply Yes / No

- 13) Cab and Body: Aluminum or Stainless steel with a 7 firefighter capacity. Comply Yes / No

- 14) Acceleration: Unit will be capable of attaining 45 MPH from a standing start in 25 seconds or less. Comply Yes / No

- 15) The service brakes shall bring the fully laden vehicle to a complete stop from an initial speed of 20 MPH, in a distance not exceeding 35 ft by actual measurement, on a paved, level surface road that is free of loose material, oil, or grease. Yes / No

- 16) Gradeability: Unit will be able to maintain 50 mph on a 9% grade. Supplemental engineering data must accompany the bid. Comply Yes / No

- 17) Gradeability: Unit will be able to accelerate from a stop on a 20% grade to 15 MPH within 25 Seconds. Transmission must not overheat during this standing stop test. Supplemental engineering data must accompany the bid. Comply Yes / No

- 18) Top Speed: Minimum 58 MPH- Maximum 65 MPH. Top speed should be limited by the rear axel ratio and not detuning engine or transmission. Priority should be given to hill climbing and startability on steep grades. Supplemental engineering data must accompany the bid. Comply Yes / No

- 19) Unit will be designed for a minimum of 7 firefighters and 6000 pounds of equipment, in addition to generator, cascade or all other fixed equipment delivered with the unit. Comply Yes / No

- 20) The air brake system shall be capable of building a minimum of 65 psi within 30 seconds from a completely drained system. Air Pump to be a minimum of 16CFM. Comply Yes / No
- 21) Additional Equipment: Bid to include the following allowances, to be credited back to the Town of Peterborough if not utilized: Comply Yes / No
- a) Radios and Hand lights- \$5970.00
 - b) Lettering and Striping- \$1995.00
 - c) Misc. Tools and Brackets-\$2100.00
 - d) Air Bottles/Cascade system-\$12,995.00
- 22) Generator: 15K hydraulic generator Comply Yes / No
- 23) Substitution of one 35 foot ground ladder for one 45 foot Bangor ladder. Please itemize price: Comply Yes / No
- 24) Addition of one "Little Giant" ladder and bracket. Please itemize price: Comply Yes / No
- 25) Front Bumper Storage: Front bumper shall have a dunnage storage bin and removable tray with lid. Size and configuration to be determined by the Bidder and the Town. Comply Yes / No
- 26) Stemco seals and matched hubcaps for front axle. Comply Yes / No
- 27) Starter motor for engine shall be Delco 40 MT or 42MT. Comply Yes / No
- 28) All Coolant lines and hoses to be Silicone with proper clamps. Comply Yes / No
- 29) Air Horn to be Grover Emergency Stutter Tone. Comply Yes / No
- 30) Trade in: All Bids shall include an itemized trade-in allowance for the current 24L1. Unit is a 1978 Seagraves Rearmount Admiral 100'. Two prices shall be included; "Certified" and "Non-Certified" Condition. Included equipment: Ground Ladders except Step Ladders, Generator, Ladder pipe and hose. Hand tools and other equipment are not included. Unit may be seen at Peterborough Fire/Rescue. : Comply Yes / No

31) Demonstrator: The Town of Peterborough will accept a Bid for a demonstrator unit manufactured to the Town specifications with the following constraints:

- a) Unit will not be in service as a factory demonstrator for more than 6 months. Comply Yes / No
- b) Unit will always be used in the presence of a dealer and or factory representative. Comply Yes / No
- c) Unit will not be loaned out or placed "in Service" by any other fire company. Comply Yes / No
- d) No payments on the unit will be made until final delivery and acceptance testing. Comply Yes / No
- e) Aerial device will have a 3rd party inspection, prior to delivery, but after the last demonstration/trade show if unit is a demonstrator. Cost will be born by the bidder. Unit will not be accepted with out the inspection certificate and no deficiencies will be acceptable. Choice of the 3rd Party MUST be approved by the Town of Peterborough in writing. Comply Yes / No
- f) All Engine, transmission, differential, fuel and generator fluids and or filters, must be replaced with new, meeting all OEM standards. Any other required service and preventative maintenance will be done prior to delivery at the cost of the bidder. Records of all service will be provided. Unit will be rejected if service not performed and or records not supplied. Comply Yes / No

32) Acceptance Testing:

- a) Prior to acceptance, the Town of Peterborough will perform a complete acceptance test of the unit to NFPA standards current at time of delivery, as well as for the specific performance items listed in this document.
- b) Unit will not be accepted if any damage exceeding \$5000.00 occurs due to accident or other condition prior to delivery and acceptance.
- c) Any wear or damage to tires and or rims which could compromise safety must be replaced with new.
- d) Any damage under this limit will be repaired to new condition and will be subject to inspection and acceptance by PFR at its sole discretion.
- e) Any and all damage must be divulged by the dealer and or factory and if it is not made known in writing to PFR, lack of communication of such damage will be terms for rejection of the unit.
- f) Bid will include 16 hours of training on the proper operation and maintenance of the unit. Training will include one week day and one weekend day, at a time scheduled by the Peterborough Fire Chief.

33) All bids shall provide TWO pricing options for dates of contract signing. Comply Yes/No

- a) On or Before Nov 15th, 2003
- b) On or Before April 1, 2004

2. Quality and Workmanship:

Comply Yes / No

The design of the vehicle must embody the latest approved automotive engineering practices. The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: accessibility of the various components which require periodic maintenance operations; ease of operation (including driving); symmetrical proportions; and warranties for all components worked on by the successful Bidder.

Construction must be rugged and ample safety factors must be provided to carry loads as specified and to meet both on and off road requirements as set forth under Performance Test Requirements. Welding shall not be employed in the assembly of the vehicle in a manner that will prevent the ready removal of any component part for service and for repair; nor will welding to the main frame members or cross members be allowed. During construction all areas where dissimilar metals come in contact, an adequate protective, neutral, non-corrosive barrier will be installed.

3. Vehicle Components and Equipment:

Comply Yes / No

The firefighting vehicle, including; chassis, body, equipment, accessories and electronic equipment to be delivered under this contract shall be, new, (not used), standard commercial products, tested and certified, to meet or exceed the requirements of this specification. The vehicle shall comply with all Federal Motor Vehicle Safety Standards (FMVSS) and Federal Regulations applicable or specified for the year of manufacture.

The chassis, components and optional items shall be represented in the manufacturer's current technical data. Data shall be limited to specifications and technical materials identical to that furnished to the authorized company representatives.

4. Performance Tests and Requirements:

Comply Yes / No

A road test will be conducted with the vehicle fully loaded and a continuous run of Twenty-five (25) miles or more will be made under local driving conditions, during which time the vehicle shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axle shall run quietly and be free from abnormal vibration or noise throughout the operating range of the vehicle. The vehicle, when loaded, shall have weight distributions on the front and rear axles which meet axle and chassis manufacturers specifications. The successful Bidder shall furnish a weight certificate showing weight on front axle, and rear axle and the total weight for the completed vehicle at time of delivery.

5. Failure to Meet Tests:

Comply Yes / No

In the event the vehicle fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the Town within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection of the vehicle.

Failure to comply with changes as the Town may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the Bidder of such changes shall also be cause for rejection of the vehicle. Permission to keep or store the vehicle in any building owned or occupied by the Town or its use by Peterborough Fire/Rescue during the above specified period with the permission of the Bidder shall not constitute acceptance.

6. Liability:

Comply Yes / No

The successful Bidder shall hold the Town harmless from any and all damages, claims, and expenses (including the Town's reasonable attorneys' fees and court costs) associated with or resulting from any claims of violation of patent, breach of Bidder's contracts with suppliers/contractors/employees, etc., and/or personal injury or property damage resulting from the manufacture, testing, delivery or use of the vehicle furnished under this Contract.

7. Warranty:

Comply Yes / No

The following minimum warranties shall be furnished:

- 1) Components Manufactured by Vehicle Manufacturer: 2 Years
- 2) Modular Body Structure: 20 years
- 3) Frame: Lifetime
- 4) Stainless steel plumbing components/seals: 10 Years
- 5) Paint: 10 Years
- 6) Corrosion: Lifetime
- 7) All components manufactured by other suppliers shall maintain the warranty supplied by those suppliers.
- 8) Aerial Ladder Structure- 20 years

Warranties shall commence upon acceptance of the vehicle. Each Bidder shall provide all warranty documentation with the submission of their Bid.

8. Towing/Transportation:

Comply Yes / No

In the event of mechanical failure to the point where the vehicle is unable to be driven while on warranty, the Bidder shall reimburse the Town of Peterborough 100% of the towing/transportation costs.

9. Delivery:

Comply Yes / No

It shall be the responsibility of the successful Bidder to deliver the vehicle to Peterborough, New Hampshire upon the completion of the construction. The delivery location shall be determined by the Peterborough Fire Chief.

Vehicle must be fully operable at time of delivery. A road test of not less than 500 miles must have been performed by the dealer prior to delivery to ensure that all driveline components are operating properly. Cab and chassis manufacturer's recommended service must have been completed.

10. Exception to Specifications:

Comply Yes / No

The specifications detailed by this Request for Bid shall be strictly adhered to. Exceptions will be considered only if they are equal to or superior to that specified. Documentation will be required explaining the nature of the deviation. The Town of Peterborough reserves the right to refuse any specific exceptions. Exceptions must be documented by detail drawings supplied by Bidder. Exceptions listed are to refer to specification page number and paragraph. Bids taking total exception to specifications will not be accepted. A pre-delivery inspection of the vehicle will be performed by the Town to ensure compliance with specifications. Deviations will not be tolerated and will be cause for rejection of vehicle unless they were originally listed in Bidder's Bid or approved in writing by the Town.

11. Drawings:

Comply Yes / No

The evaluation of the Bids shall be of many factors: three (3) of which shall be design, engineering reliability, and completeness of drawings. No Bidder's Bid shall be considered unless complete engineering drawings are submitted with the Bid package.

The submission of these drawings is in addition to production working drawings, which must be submitted to the Town for approval prior to construction. The engineering drawings will allow the Town of Peterborough to fully evaluate the Bidders Bid, design, engineering and drawing quality in comparison to other Bidder's and Town's specification.

The Bidder's engineering drawings shall be produced on computer-aided-design (CAD) equipment to assure critical tolerance and detail only available with CAD equipment. The blueprints shall be on "D" size paper, 36" x 24" in size, and views must be 1/2" = 1'-0" scale. This will allow the Town the ability to compare drawings of all manufacturers on an equal basis.

The blueprints will show the Street Side, Curb Side, Rear View, Front View and Plan View including dimensions.

The blueprints shall be completed only by the vehicle manufacturer, and must be exactly to Town's specifications.

Submission of "similar to" blueprints or "statements referring to later submission of blueprints after award of contract" will be automatically rejected. Scaled drawings that show each side, front, rear and top views, location and size of compartments, lights, overall dimensions of body and locations of major systems must be provided.

Successful Bidder shall not start construction until one (1) set of plans has been approved, and signed by the Peterborough Fire Chief and returned.

12. Electrical Schematics:

Comply Yes / No

The efficient maintenance and service of the vehicle is of prime importance to the Town. To properly maintain the vehicle electrical system, the vehicle must be constructed with the finest in electrical materials and components.

To maintain the vehicle electrical systems, the Town must be provided with the instructional manuals, complete electrical information and schematics on the vehicle.

The electrical information shall be provided as follows: Individual 8-1/2" x 11" computer drawn schematics for each 12/120/220-volt electrical circuit, noting the circuit number, wire size, switches, breakers and terminals for that particular circuit and appliance.

BID SPECIFICATIONS

FRAME

A fabricated frame made of 50,000 PSI minimum yield, high strength, low alloy steel, with an integral torque box shall be provided. The frame and torque box shall be made of 42.1 lbs. per square foot structural channel with 3/8" integral bulkhead supports throughout. The frame shall be an all-welded assembly and shall have internal K-bracing to minimize torsional stress. The torque box shall be 18" high x 34" wide and shall have a section modulus of 288 cubic inches and a resistance to bending moment of 14,110,000 inch pounds. The frame section forward of the torque box shall have a section modulus of at least 52.14 cubic inches per rail and a resistance to bending moment of 2,607,000 inch pounds per rail.

The vehicle manufacturer shall supply a full lifetime frame warranty against defects in materials or workmanship.

BUMPER

The vehicle shall be equipped with a one-piece 10" high bumper, made from 10-gauge (0.135" nominal) polished stainless steel for corrosion resistance, strength, and long-lasting appearance. It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs and shall extend 20" forward of the front of the cab per customer specification to provide additional protection against low-speed frontal impacts.

The space between the bumper and the front of the cab shall be covered on the top and on each side with 1/8" aluminum diamond plate.

FUEL SYSTEM

One (1) 50-gallon fuel tank shall be provided and mounted below the frame rails at the rear of the chassis where it is in a protected location. Two (2) wrap-around type straps shall be provided to allow tank removal from below the chassis. The tank shall be of an all-welded, aluminized-steel construction with anti-surge baffles and shall conform to all applicable Federal Highway Administration (FHWA) 393.65 and 393.67 standards.

The fuel tank shall be equipped with a 2" diameter filler neck that extends to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system, as required by NFPA 1901 Standard for Automotive Fire Vehicle. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank, and a 1/2" NPT drain plug shall be provided in the bottom.

The tank shall have a minimum useable capacity of 50 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A mechanical fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

FUEL/WATER SEPARATOR

A Racor fuel/water separator shall be installed in place of the primary fuel filter on DDC engines, and in addition to the fuel filters on all other engine models. The unit shall utilize a three-step separate process: centrifuge for primary contaminant separation, conical baffles for water coalescing, and a replaceable filter for final particulate removal. The separator shall have a bottom drain for removing contaminants, shall be heated and shall have a rated maximum flow of 3.16 GPM. A sensor with indicator light and audible alarm shall be provided for the Racor fuel/water separator. The indicator light shall be mounted in the dash with the unit located inside the pump module. The unit will alert the driver of high water content in the separator bowl.

FRONT AXLE/SUSPENSION

The vehicle shall utilize an ArvinMeritor FL-943 5" drop beam front axle with a rated capacity of 20,000 lbs. It shall have "easy steer" knuckle pin bushings and 68.83" kingpin centers. The front suspension shall be furnished with two (2) Monroe heavy-duty, double-acting shock absorbers, one (1) on each side, for smooth ride and handling. The front axle shall have a nominal cramp angle of 45 degrees.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10-hole hub-piloted wheels in order to improve wheel centering and extend tire life. The front axle shall be equipped with 16-1/2" x 6" S-cam brakes with ArvinMeritor automatic slack adjusters. Front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum 3 leaf, progressive rate with bronze bushings and a capacity of 20,000# at the ground. The vehicle shall be equipped with a Sheppard model M110 integral power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer a maximum front axle load of 20,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall be able to operate mechanically should the hydraulic system fail.

A 5-year/unlimited miles parts and 3-year labor front axle warranty shall be provided as standard by ArvinMeritor Automotive.

A 5-year/unlimited miles parts and 3-year labor front brake warranty shall be provided as standard by ArvinMeritor Automotive. Warranty shall include bushings, seals, and cams.

Front Tires

Front tires shall be two Michelin 425/65R 22.5 tubeless type 20 PR radial tires with XTE2 highway tread mounted on 22.5 x 13.00 painted steel hub-piloted disc wheels. Tires with wheels shall have the following weight speed capacity and speed rating: 21,000 lbs. @ 65 mph

The tires and wheels shall conform to the Tire and Rim Association requirements.

REAR AXLE/SUSPENSION

The vehicle shall utilize an ArvinMeritor RT-40-145, 40,000 lb. capacity rear tandem axle with single reduction hypoid gearing, 16-1/2" x 7" Q-Plus S-cam brakes, and ArvinMeritor automatic slack adjusters.

The axle shall be equipped with oil lubricated wheel bearings with ArvinMeritor oil seals.

The rear suspension shall be a Hendrickson RT-403 40,000 lb. steel leaf spring suspension utilizing "bar pin" type beam end connections for simplified vehicle alignment and end bushing

serviceability. The spring hangers shall be used in a four point mounting arrangement to help eliminate a concentration of stress at any one point of the frame, thus preserving the integrity of the frame. Equalizer beams, cross tubes and torque rods shall be provided to maintain proper alignment during cornering and absorb driving and braking forces.

A 3-year/unlimited miles parts and labor axle warranty shall be provided as standard by ArvinMeritor Automotive.

A 3-year/unlimited miles parts and labor brake warranty shall be provided as standard by ArvinMeritor Automotive. Warranty shall include bushings, seals and cams.

Rear Tires

Rear tires shall be Michelin 11R22.5 tubeless type 16 PR radial tires with XDN mud and snow tread mounted on 22.5 x 8.25 hub-piloted steel disc wheels. Tires with wheels shall have the following weight capacity:

23,800# (dual) @ 65 MPH

The wheel and tire shall conform to the Tire and Rim Association requirements.

AIR BRAKE SYSTEM

The vehicle shall be equipped with air operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 Standard.

Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems. Air-lines shall be constructed of color coded nylon tubing routed in a manner to protect from damage. Brass fittings shall be provided. The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. A 1/4" brass quick release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

A pressure protection valve shall be installed to prevent use of air horns or other air operated devices should the air system pressure drop below 80 psi.

Two (2) air pressure needle gauges, for front and rear air pressure, with warning light and buzzer shall be installed at the driver's instrument panel.

Air Tank Reservoirs

One reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

The following tank sizes shall be installed:

Tank Sizes in Cubic Inches

Suspension	Wet	Front	Rear	Rear Extension	Total
58K	1738	1738	2988	1738	8202

An automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves.

Emergency/Parking Brake

Spring actuated emergency/parking shall be installed on the rear axle. One (1) Bendix-Westinghouse PP-1 parking brake control shall be supplied on the lower dash panel within easy reach of the driver.

Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic spring brake application at 40 psi.

Air Braking System

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally sealed, water, weather and vibration resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to 5 times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall malfunction to the operator.

The system shall consist of a sensor clip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate in milliseconds wheel slip. A deviation shall be corrected by cyclical brake application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall insure that each wheel is braked in optimum efficiency up to 5 times a second.

The system shall also interface with the application of the auxiliary engine, exhaust or driveline brakes to prevent wheel lock.

To improve service trouble shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started and a dash mounted light shall go out once the vehicle is moving above 4 mph.

Warranty

A 3 year/300,000 miles parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

AUTOMATIC TRACTION CONTROL

To further improve vehicle drive characteristics, the unit shall be fitted with automatic traction control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

A 3 year/300,000 miles parts and labor Automatic Traction Control (ATC) warranty shall be provided as standard by Meritor Automotive.

POWER TRAIN**Engine**

The vehicle shall utilize a Detroit Diesel engine as described below:

- Series 60 14.0 liter turbocharged
- Air-to-air after cooled 4cycle diesel
- Six (6) Cylinder
- 855 cu.in. displacement
- 500 gross BHP @ 2100 RPM
- Gross torque of 1550 lb. ft. at 1200 RPM
- DDEC IV (Detroit Diesel Electronic Controls)
- Detroit Diesel coolant filter and conditioner treatment
- Bore and stroke shall be 5.24 x 6.61
- Compression ratio shall be 16:1
- Engine lubrication system, including filter, shall have a minimum capacity of 36 quarts
- 12 volt starter
- Bendix Tu-Flo 750 16.5 cubic foot per minute air compressor
- Exhaust gas recirculation

The engine exhaust system shall not require a catalytic converter to meet EPA requirements. The exhaust shall be 6" diameter and shall exit on the right side of the vehicle ahead of the rear wheels.

A 5-year/100,000 miles parts and labor warranty shall be provided as standard by Detroit Diesel.

A copy of the End Product Questionnaire (EPQ) stating the engine installation meets Detroit Diesel recommendations shall be provided. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

Engine Brake

One (1) Jacobs model 795 engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-low selector switch shall be mounted in the cab.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The high-low selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.

Transmission

The vehicle shall utilize an Allison EVS4500P 5-speed automatic transmission.

A push button shift module Allison model #29538373 shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

The transmission shall have a gross input torque rating of 1600 lb. ft. and a gross input power rating of 540 HP.

The gear ratios shall be as follows:

1 - 4.70

2 - 2.21

3 - 1.53

4 - 1.00

5 - .76

R - 5.55

The transmission shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the operator.

The transmission shall have a lubricant capacity of 51 quarts.

A transmission oil cooler shall be provided in the lower tank of the radiator.

The transmission shall contain two engine driven PTO openings located at the 1 and 8 o'clock positions. The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of transmission when engine speed is decreased during pump operations, thereby maintaining a constant gear ratio. Transmission lock-up shall be automatically activated when placing pump in gear. Transmission lock-up shall

be automatically deactivated when disengaging pump for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

Driveline

Drivelines shall have a heavy-duty metal tube and shall be equipped with Spicer 1810 series universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

COOLING SYSTEM

The cooling system shall have a tube-and-fin radiator with a minimum of 1,288 square inches of frontal area to ensure adequate cooling under all operating conditions. The radiator shall have five (5) rows of brass tubes with 16 copper fins per inch, and bolted steel top and bottom tanks for durability and ease of repair. There shall be a drain valve in the bottom tank to allow the radiator to be serviced.

Radiator hoses shall be made from rubber reinforced with nylon fiber to provide added burst strength. Radiator hose clamps shall be worm-screw style for easy adjustment.

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

The system shall include a charge air cooler with a minimum of 888 square inches of frontal area to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance. The charge air cooler core shall be 2.62" deep with 10 fins per inch.

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator.

HYDRAULIC SYSTEM

A hydraulic fixed-displacement pump system shall be provided to power all outrigger and aerial functions with direct control stations provided for each system. The hydraulic system shall be driven off the engine-driven power steering pump with an activation switch located on the cab dash within easy reach of the driver. A system "engaged" indicator light shall be provided on the activation switch. This hydraulic pump system will allow for the aerial system to be activated without having to shut down the water pump or reduce engine RPM's. Engagement shall be allowed only with the transmission in the neutral or pump gear and the parking brake engaged. This system heats the hydraulic fluid while driving to provide smoother operation to other systems in cold climate conditions, rather than utilizing a separate pump.

VEHICLE CAB

The vehicle shall have an all-welded aluminum, fully enclosed tilt cab designed exclusively for the fire service to ensure long life.

The cab shall be constructed from 3/16" (0.188") 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6061-T6 aluminum alloy extruded sub frame, wall supports, and roof bows. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.

The cab floor shall be welded to the sub frame structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The front of the cab shall be contoured, each corner having a minimum 9" outer radius. The roof perimeter shall be constructed of a 4" x 6-5/8" wide (4" x 6.63" wide) 6061-T6 aluminum extrusion with an integral drip rail. Cast aluminum roof corner joints welded to aluminum 6061-T6 extrusions shall be used to ensure structural integrity.

Cab Exterior

The exterior of the cab shall be 94" wide x 139.5" long to allow sufficient room in the occupant compartment for four to five personnel. The cab roof shall be approximately 95" above the ground depending on the front axle and tires specified. The back-of-cab to front axle length shall be 67.5".

Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16" (0.188") composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.

Two (2) air intakes with polished stainless steel grilles shall be provided one on each side of the cab. Each grille shall have approximately 203 square inches of effective inlet area to ensure adequate airflow.

The cab windshield shall be of a two-piece design with a 1/4" (0.25") thick curved, laminated safety glass with 75% light transmittance automotive tint. A combined minimum viewing area of 2,800 square inches shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver's seat shall be no more than 12'- 9" from the front of the cab to ensure good visibility in congested areas.

Stationary windows with a 75% light transmittance safety automotive tint and a minimum viewing area of 385 sq. in. each shall be provided between the front and rear doors on each side to help eliminate blind spots.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one on each side; two (2) intermediate rubber load-bearing

cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the vehicle. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.

The entire cab shall be tilted through a 40-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. Split cab tilting shall not be acceptable due to poor sealing characteristics and alignment between the cab and canopy. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

Battery jumper studs shall be provided on the officer's side to allow jump starting of the vehicle without having to tilt the cab.

Cab Interior

The interior of the cab shall be of the open design. Exposed, interior metal surfaces shall be pretreated using a Weather Jacket corrosion prevention primer coat, and shall be painted with a textured paint.

A fully insulated engine cover shall be provided in the rear crew area. The engine cover shall be of a contoured design to provide sufficient seating room for two (2) rear-facing crew seats. An all-aluminum sub frame shall be provided for the engine cover. Steel sub frames shall not be acceptable. The engine cover shall be provided with an access panel for checking and filling transmission fluid, power steering fluid, and engine oil without raising the cab. Engine cover insulation shall consist of an internal heat-resistant, Mylar-backed 1" foam. Externally, a ¼" (0.25") padded vinyl blanket with heat-resistant backing shall be provided to reduce engine noise and heat from entering the cab interior.

The vinyl blanket shall be the same color as other interior padding. The noise insulation shall keep the interior sound level within the limits stated in the current edition of NFPA 1901.

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

A minimum of 56.75" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 53" floor-to-ceiling height shall be provided in the rear seating area. A minimum of 37" of headroom shall be provided for the seat over each fender well.

The rear wall of the cab shall be constructed of 3/16" (0.188") bright aluminum tread plate with the diamond pattern on the exterior to provide a long-lasting, damage-resistant surface for the rear exterior wall. Structural extrusions shall be used to reinforce the rear wall.

The interior of the cab shall be insulated prior to installation of the wall and trim panels. The insulation shall consist of 2 oz. wadding and 1/4" (0.25") foam padding. The padding board shall be backed with 1/4" (0.25") thick reflective insulation. Interior cab padding shall consist of a rear cab headliner, the rear wall of the cab, and side panels between the front and rear cab doors.

All surfaces subject to repeated contact and wear -- the dash, overhead console, windshield posts, headliner, door panels, and door post trim -- shall be covered with thermoformed, non-metallic, non-fiber trim pieces or panels to provide excellent scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided to give additional belly room.

A full-width, three-piece overhead switch panel group shall be mounted to the cab overhead console. The console shall be thermoformed and shall have easily removable switch mounting panels. The console shall coordinate with the color of the overhead interior upholstery. All specified warning light controls shall be mounted on the overhead console panel group. Padded sun visors shall be provided for the driver and officer.

The cab dash instrument housing shall be thermoformed. The dashboard shall be built-in a wrap-around, user-friendly arrangement to provide maximum visibility and easy access to driver controls.

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be 21-1/2" (21.5") above the ground with standard tires in the unloaded condition. The rear cab steps shall be a minimum of 12" deep x 21" wide. The steps shall be located inside the doorsill where they are protected against mud, snow, ice, and weather. The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface in accordance with the current NFPA 1901.

Cab Doors

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36" wide x 67" high, and the rear cab door openings shall be approximately 33.75" wide x 66" high. The front doors shall open approximately 75 degrees, and the rear doors shall open approximately 80 degrees.

The inner door panels shall be made from a thermoformed, non-metallic; non-fiber material for increased durability and sound deadening. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. For effective sealing, an extruded rubber gasket shall be provided around the entire

perimeter of all doors.

Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901. "L"-type door handles shall be provide on the exteriors of the doors.

A black rubber grip handle shall be provided on front each door below the door window to insure proper hand holds while entering and exiting the cab. A short, black rubber grip handle shall be provided on the left and right side windshield post and at the striker bolt area for the rear doors.

Cab door assist handrails shall consist of four (4) 1.25" diameter x 18" long 6063-T5 anodized aluminum tubes mounted between chrome stanchions directly behind the door openings, two each side of the cab. The handrail shall be machine extruded with an integral ribbed surface to assure a good grip for personnel safety. Rear cab entry doors shall include a black rubber grip handle mounted adjacent to the striker bolt. Front cab entry doors shall include a black rubber grip handle mounted on the A-Post.

Aluminum bright-finish tread plate scuff panels shall be provided on the lower interior portion of all doors to protect the door panels from wear. The scuff panels shall extend from the bottom of the door to approximately 19.5" above the floor line on both the front and rear doors.

The front door windows shall provide a minimum viewing area of 530 sq. in. each. The window support pillar shall be located in such a position to allow maximum possible visibility of the side mirrors and through the corner of the front windshield. The rear door windows shall provide a minimum viewing area of 500 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable. Rear cab doors shall be provided with side-sliding windows.

Interior Lighting

Interior cab lighting shall include four (4) individually switched lights in the ceiling, two (2) in the front and two (2) in the rear. Each light shall have two (2) light heads, with one light providing a white light and the second light providing a red light for nighttime use.

Four (4) step lights, one (1) in each of the four (4) cab doors, shall be installed to provide downward illumination of the steps and the surrounding ground.

The cab ceiling lights and the step lights shall be wired through the "door ajar" switch to provide interior lighting when the battery power is on and any cab door is opened.

An engine compartment light with a switch shall be installed to illuminate the engine compartment.

Cab Instruments and Controls

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a 1-gallon washer fluid reservoir, an intermittent-wipe function, a "return to park" provision, and an integral wash circuit. Wiper arm length shall be approximately 28", and the blade length approximately 18". Each arm shall have a 70-degree sweep for full coverage of the windshield. The reservoir shall be capable of being

filled without raising the cab.

An in-dash mounted heater and defroster with a minimum capacity of 42,000 BTU/hr and all necessary controls shall be mounted in the cab. The airflow system shall consist of three levels, defrost, cab and floor, and shall have fresh air and defogging capabilities.

Cab instruments and controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. A 24-icon instrument panel message center shall be located above driver instrumentation. The message center shall include LED (light-emitting diode) indication lights and applicable warning buzzers for engine system warning, low voltage, aerial and generator engage (as required), as well as system indicators, such as high beam, park brake, and turn indicator.

Gauges and emergency warning light switches shall be installed in the driver's side of the overhead console on removable panels for ease of access and service. The following gauges and controls shall be provided:

- Speedometer/Odometer
- Tachometer with integral engine hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure needle gauges, for front and rear air pressure, with warning light and buzzer
- Fuel gauge
- Voltmeter
- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch in overhead control panel
- Transmission oil temperature gauge
- Pump shift control with "pump in gear" and "ok to pump" indicator lights in message center
- Parking brake controls with red indicator light in message center
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Transmission oil temperature gauge
- Air filter restriction indicator

Instrument controls and switches shall be identified as to their function by backlit wording

adjacent to each switch, or by indirect panel lighting adjacent to controls. The headlight switch shall control the illumination of controls and switches.

Fast Idle System

A fast idle system shall be provided and controlled by the cab-mounted or pump panel-mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output. (The cab dash has a position for the switch by default, if the switch is to be located on the pump panel it must be annotated in "Location")

Electrical System

The chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere or disrupt vehicle operation. An automatic thermal reset master circuit breaker compatible with the alternator size shall be provided. Automatic reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition and other circuits. An access cover shall be provided for access to the electrical distribution area.

A 10-place, constantly hot, fuse panel and ground for customer installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color coded and functionally labeled every 3" on the outer surface of the insulation for ease of identification and maintenance.

The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4-wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump panel (as applicable). The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Dual rectangular sealed beam halogen headlight shall be installed on each front side of the cab, mounted in a polished chrome plated bezel.

The low beam headlights shall come on with the release of the parking brake. The headlight switch shall automatically override low beams for normal operation.

The vehicle shall have sufficient lights to properly illuminate step areas. Ground area lights shall be provided for each cab door and one each side under the front bumper area.

Areas under the driver and crew area exits shall be activated automatically when the exit doors are opened. Ground area lights shall be switched from the cab dash with the work light switch.

WINDOWS

Driver and officer door windows shall have the support pillar located toward the front of the window. There shall be a vent that can be opened and closed within the window itself, located towards the front.

MAP STORAGE ON CAB FRONT DOORS

A molded interior map pocket shall be incorporated into the cab front door panels.

MAP STORAGE ON CAB REAR DOORS

A molded interior map pocket shall be incorporated into the cab rear door panels.

SEATS COLOR AND MATERIAL

All seat cushions in the cab will be manufactured by 911 Seats Incorporated and will be upholstered with FMVSS/302 flame-retardant, water repellant and wear resistant black and gray tweed, Imperial 1200 fabric.

SEATING

One (1) Seats, Inc 911 air suspension seat shall be supplied for the driver's position.

Features shall include:

- Universal styling
- High back seat back
- Low profile air suspension assembly with rubber accordion cover
- Weight, height and ride adjustment
- Built-in back and lumbar adjustment
- 4" fore and aft adjustment

Two (2) Seats, Inc. 911 Universal SCBA seat backs and a two (2) person bench style seat with a single bottom cushion shall be mounted on an aluminum seat riser shall be supplied for the officer's and center passenger position. The outboard side of the seat riser shall be angled, providing sufficient legroom when entering and exiting the cab.

Features shall include:

- Universal styling
- Easy exit, flip up, and split headrest for improved exit with SCBA.
- Bench cushion shall be constructed of high-density foam with a heavy-duty wear resistant material.

All seat positions shall have retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

SEATING

Two (2) Seats, Inc. 911 Universal SCBA seat backs and a two (2) single seat bottom cushions shall be provided rear facing in both wheel wells.

Features shall include:

- Universal styling.
- Easy exit, flip up, and split headrest for improved exit with SCBA.
- Bench cushion shall be constructed of high-density foam with a heavy-duty wear resistant material.

All seat positions shall have retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

SEATING

Two (2) Seats, Inc. 911 Universal fold down jump seats shall be provided. Located on the rear wall facing forward.

Features to include:

- Seat bottom cushion shall be constructed of high density foam with a heavy duty, wear resistant material.
- Seat bottoms automatically fold up when not in use to provide increased room in the rear of the cab.

All seat positions shall have retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position. All SCBA seat positions shall be equipped with bottle holding brackets.

GRAY INTERIOR

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

MUDEFLAPS

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flap shall have corrugated ridges to distribute water evenly.

MIRRORS

Two (2) Ramco model 6001FFR remote controlled heated polished aluminum mirrors shall be installed. The mirrors shall incorporate a full face main section with a convex mirror with housing, model CAS750, mounted to the top. The adjustment of main sections shall be through dash mounted switches.

ALTERNATOR

There shall be dual 270 amp Leece Neville alternators installed. The alternators shall be Leece Neville pad mount brushless type with integral rectifiers and adjustable master/slave voltage

regulators with a combined output of 480 amps per NFPA 1901 rating (540 amps per SAE J56).

BATTERIES

Four (4) Douglas model 31950T heavy-duty Group 31 12-volt maintenance-free batteries shall be supplied to allow easy replacement of any single battery. The batteries shall have a minimum combined rating of 3,800 (4 x 950) cold cranking amps (CCA) @ 0 degrees F and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight battery connections.

Batteries shall be placed on non-corrosive mats and stored in well-ventilated locations. Batteries shall be secured with hold-down brackets to protect them from road shock and vibration.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the vehicle.

WHELEN 600 LED TURN SIGNALS

There shall be a pair of Whelen 600 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted as specified and wired with weatherproof connectors. The turn signals shall be installed in a polished, chrome-plated ABS bezel for appearance and corrosion resistance.

DEFOGGER FANS

Two (2) adjustable windshield defogger fans with individual switches shall be mounted in the cab centered below the overhead console. The fans shall be 12 volt and shall each be rated at 280 CFM.

SPOTLIGHT RECEPTACLE

A three place plug-in type receptacle for hand held spotlights, etc. shall be installed in the vehicle cab.

RADIO AND HANDLIGHT ALLOWANCE

An allowance in the amount of \$5,960.00 shall be supplied in the bid. This allowance shall be to secure two way radios and hand lights for the truck.

FORWARD AERIAL SUPPORT

The aerial ladder support shall be fabricated from A36 steel. It shall be located behind the rear wall of the cab and shall be bolted to the frame rails to allow removal in case of accidental damage.

APPROVAL DRAWINGS

General arrangement drawings depicting the vehicle's appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views

FRONT BUMPER STORAGE

Front bumper to have a dunnage storage bin with removable tray and lid. Size to be determined by the manufacturer and PFR.

FRONT TOW HOOKS

Two (2) heavy-duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the vehicle without damage. They shall be mounted in the downward position.

AIR HORNS

Dual air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure. Activation for the driver shall be through a horn ring selector switch and a foot pedal shall be supplied for the officer.

REAR MUDDLAPS

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear body wheel wells. A reflective logo shall be adhered to the flap itself. The design of the mud flap shall have corrugated ridges to distribute water evenly.

AUTOMATIC TIRE CHAINS

An On Spot automatic tire chain system shall be installed on the rear axle of the vehicle (forward most rear axle on tandems). The control switch shall be located in the chassis cab and it shall be protected with a spring-loaded cover to prevent an accidental engagement of the system.

REAR TOW EYES

Two (2) heavy-duty tow eyes made of 3/4" (0.75") thick steel having 2.5" diameter holes shall be bolted directly to the rear of the frame to allow towing (not lifting) of the vehicle without damage. The tow eyes shall be protruding into the rear compartment or out the rear of the body. The tow eyes shall be painted chassis black.

RECEPTACLE INLET 30 AMP AUTO EJECT

The receptacle shall be a Kussmaul 30 Amp 110 volt NEMA super auto-eject #091-73-30-120 with a yellow cover. The super auto-eject receptacle shall be completely sealed and have an automatic power line disconnect.

BATTERY CHARGER

A 20-amp battery charging system shall be installed and connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse. The system shall provide a visual signal if battery voltage drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status. Equalization charge shall only occur when necessary, not with every cycle. The system shall fully charge the batteries while allowing up to 8 amps of additional load for onboard systems.

The shoreline connection and remote charge indicator panel shall be located outside of the cab at the driver door area.

AIR OUTLET

A 1/4" female quick disconnect air hose outlet shall be mounted in the specified location and will be connected to the air reservoir tank. A 1/4" inline check valve will be installed in the line.

SEATING CAPACITY TAG

A permanent plate on each entry door shall be installed, specifying that seating for seven (7) shall be provided.

WIDE BODY MODIFICATION

The body compartmentation depth shall be increased by 2" each side. The overall width of the body shall be increased to 100.5" outside rub rail to outside rub rail.

AERIAL EQUIPMENT BODY**Performance**

The vehicle body shall be constructed entirely of aluminum extrusions with interlocking aluminum plates. An extruded modular aluminum body is required due to the high strength to weight ratio of aluminum, corrosion resistant body structure, easy damage repair, and lighter overall body weight to allow for increased equipment carrying capacity.

The vehicle shall incorporate a rescue style body design to maximize compartment space. The rescue style left and right side body shall combine upper and lower compartments to provide more efficient use of body storage capacity. The body design shall provide 303.96 cubic feet of storage, which exceeds the minimum NFPA 1901 Chapter 6-5 requirement of 40 cubic feet.

The entire vehicle shall be constructed of aluminum extrusions. Body designs that incorporate steel sub-frames connected to aluminum compartments are not as corrosion resistant and not acceptable.

Body Mainframe

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The mainframe shall incorporate a series of vertical frame components connected in series. Each vertical frame assembly shall be constructed with 3" x 3" extrusions welded together in a square frame configuration. The open center shall permit the installation of a tunnel for ground ladder storage. The mainframe shall be held together from front to rear by two solid 1/2" x 3" aluminum braces on each side of the vertical frame components. The braces shall also serve as the connection point between the torque box and body frame. The body side compartments shall be connected and supported by the extruded aluminum mainframe assembly.

Body Side Assemblies

The left and right side body assemblies shall be framed with 6063T5 1 1/2" x 4" 3/16" wall extrusions. The front and rear body corners of the side assemblies shall be a radiused corner extrusion. The body compartments shall be framed to make full height compartments ahead and behind the wheel well opening. The body side assemblies shall be designed so that the compartment walls are not required to support the body. The compartments shall be interlocked and welded to the side assembly extrusions.

The top of the body side assemblies shall be supplied with tread plate covers with polished corners to minimize maintenance and provide service access to electrical components.

Wheel Well Opening

The wheel well frame, constructed from 1-1/2" x 4" 6063T5 aluminum extrusions shall be slotted the full length to permit an internal fit of 1/8" aluminum tread plate above the tandem wheel well openings.

The wheel well liners shall be 1/8" smooth aluminum material painted body color. The inner liners shall be welded to the body side frame.

Stabilizer Openings

The body shall be designed to accommodate a four stabilizer aerial system. One opening shall be supplied behind the rear axle as close to the wheel well opening as possible to maximize rear angle of departure and to prevent the stabilizer pads from contacting the ground during driving. The second set shall be mounted just behind the transverse compartment. The openings shall be framed in aluminum extrusions. A stabilizer cover made from tread plate shall be supplied on the extendable stabilizer. The cover shall provide a pleasing appearance and mounting location for a red stabilizer warning light as outlined in NFPA 1901 18-21.2.5.

The stabilizer openings shall be supplied with clear lights to illuminate the stabilizers and the ground surrounding the openings. The lights shall illuminate when any stabilizer is moved from the stored position.

Body Mounting System

The body shall attach to the integral torque box with grade 8 bolts connected through steel mounts welded on the side of the torque box. To isolate dissimilar metals a 1/4" fiber reinforced rubber dielectric barrier between the aluminum body and steel torque box shall be supplied. Body designs that weld to the aerial torque box or chassis frame rails shall not be acceptable due to the stress imposed on the vehicle during road travel and aerial operations.

Rear Body Design

The rear body shall be designed to provide ground ladder storage, hose deployment, and service access to aerial components. The center rear of the body shall be open for ground ladder storage. The area below the ground ladder storage shall be for a waterway inlet (if applicable), the stabilizer control panel and have access doors to hydraulic components.

A bolt on 3/16" aluminum tread plate rear tailboard shall be supplied and attached to the underside of the aerial access staircases.

The aerial master control panel that is located on the rear of the body shall consist of a master switch; interlock light, and indicators that illuminate when each stabilizer is deployed. The stabilizer controls shall be divided into two boxes located one each side on the rear body so the operator may observe the stabilizers being deployed on each side of the vehicle as outlined in NFPA 1901.

Fuel Fill

The fuel fill shall be located at the rear of the vehicle below the ladder storage tunnel and shall be supplied with a hinged tread plate door. The door with extruded aluminum handle shall be attached with a 1/8" stainless steel hinge and coil spring to hold the door open or closed. The door shall be labeled "Diesel Fuel Only". An open grate punched in the surface of the rear step

shall be supplied under the fuel fill door to permit run off of accidentally spilled fuel as outlined in NFPA 1901 13-7.3.

Turn Table Access Staircase

Two staircases shall be supplied on the rear body. The staircases shall be mounted inboard of the taillights and outboard of the ground ladder storage area. The staircases shall permit continuous egress from the turntable to the ground. The staircases shall form a double beavertail rear body design with 1 ¼" OD handrails mounted to the trailing edge of the beavertail. The handrail stanchions shall be located just below body level to prevent aerial contact with the handrails when the aerial is at low angles of operation.

Access steps shall be mounted in accordance with current NFPA requirements, and shall not exceed a maximum stepping height of 18". The steps shall be a minimum of 4" deep x 15" wide. The top surface of the steps shall have a minimum of 35-sq. in. and shall have a slip-resistant surface. Access steps shall be able to support up to 500 pounds. Steps shall be located to provide a minimum of 8" clearance between the leading edge of the step and any obstruction.

Body Top

The top of the body between the side compartments shall be an open storage area approximately 70" wide x 11" deep and 126" long. This area shall be framed with 3"x3" 3/16" wall extrusions. The floor shall be 1/8" diamond plate supported by the body mainframe extrusions. The body top shall have an access tube for aerial hydraulic oil fill and check.

Compartments

All body compartment walls and ceilings shall be constructed from 1/8" formed aluminum 3003 H14 alloy plate. Each compartment shall be modular in design and shall not be part of the body support structure.

Compartment floors shall be constructed of 1/8" aluminum diamond plate welded in place. Compartment floors that are over 15" deep shall be supported by a minimum 1.5" x 3" x 1/8" walled aluminum extrusions. The compartment seams shall be sealed using a permanent pliable silicone caulk. A series of louvers shall be supplied to facilitate ventilation of each compartment. Each louver shall be 3" wide by ¾" tall and ½" deep.

Compartment Doors

Side compartment doors on the L4, L5, R4, and R5 compartments shall be constructed using a box pan configuration. The outer door pan shall be beveled and shall be constructed from 3/16" aluminum plate. Inner door pans shall be constructed from 1/8" smooth aluminum plate and have nutsert fittings to attach door hold-open hardware. The inner pan shall have a 95-degree bend to form an internal drip rail. Compartment doors shall have a 1" x 9/16" closed cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door.

A drain hole shall be installed in the lower corner of all inside door pans to assist with drainage.

Polished stainless steel Hansen D-ring style twist lock door handles with #459 latches shall be provided. The 4 ½" D-ring handles shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

Compartment doors shall be securely attached to the vehicle body with full-length stainless steel 3/8" knuckle ¼" rod piano type hinges isolated from the body and compartment door with a

dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe. All doors shall have a gas shock style hold open devices connected to the body with a gas spring casting and connected to the inner door.

An anodized aluminum drip rail shall be mounted over each compartment opening to assist with water runoff.

Compartments Sizes

The approximate compartment sizes and locations shall be as follows:

Compartment	Cubic Feet	Door Opening (W) x (H)	Compartment Size (W) x (H) x (D)
L-1/R-1 (transverse front of body)	73.10	25" x 72"	25" x 41" x 94" (upper) 25" x 31" x 24" (lower each side)
Left Side:			
L-2 (over forward stabilizer)	15.04	25" x 55"	25" x 27" x 26" (upper) 25" x 28" x 16" (lower)
L-3 (behind forward stabilizer)	27.11	32" x 61"	32" x 61" x 26"
L-4 (over rear wheels)	18.37	49" x 27"	49" x 27" x 26"
L-5 (over rear wheels)	19.12	51" x 27"	51" x 27" x 26"
L-6 (over rear stabilizer)	13.45	25" x 55"	25" x 27" x 24" (upper) 25" x 24" x 16" (lower)
L-7 (behind rear stabilizer)	22.34	35" x 61"	35" x 27" x 24" (upper) 27" x 30" x 24" (lower)
Right Side:			
R-2 (over forward stabilizer)	15.04	25" x 55"	25" x 27" x 26" (upper) 25" x 28" x 16" (lower)
R-3 (behind forward stabilizer)	27.11	32" x 61"	32" x 61" x 26"
R-4 (over rear wheels)	18.37	49" x 27"	49" x 27" x 26"
R-5 (over rear wheels)	19.12	51" x 27"	51" x 27" x 26"
R-6 (over rear stabilizer)	13.45	25" x 55"	25" x 27" x 24" (upper) 25" x 24" x 16" (lower)
R-7 (behind rear stabilizer)	22.34	35" x 61"	35" x 27" x 24" (upper) 27" x 30" x 24" (lower)

Handrails

Access handrails shall be provided at all step positions, including, but not limited to, the rear tailboard and installed to NFPA 1901 13-8. All body handrails shall be constructed of maintenance free, corrosion resistant, extruded aluminum. Handrails shall be a minimum of 1.25" OD and shall be installed between chrome end stanchions at least 2" from the mounting surface to allow for access with a gloved hand. The extruded aluminum shall be ribbed to assure a good grip for personnel safety.

The handrails shall be installed as follows:

- Four (4) 48" handrails, two each side, located on the aerial access stair case

Steps, Standing and Walking Surfaces

The maximum stepping distance shall not exceed 18", with the exception of the ground to first step. The ground to first step shall not exceed 24". The ground to first step shall be maintained when the stabilizers are deployed by an auxiliary set of steps installed at the aerial access staircase. All steps or ladders shall sustain a minimum static load of 500# without deformation as outlined in NFPA 13-7.2.

All exterior steps shall be designed with an average slip resistance of .68 when wet as measured with an English XL tester following ASTM F 1679(Standard Test Method for Using a Variable Incidence Tribometer).

Vehicle Warning Labels

A label shall be supplied on the rear body to warn personnel that riding in or on the rear step is prohibited as outlined in NFPA 1901 13-7.4. A label shall be applied to both sides of the vehicle and the rear to warn operators that the aerial is not insulated.

Rub rail

The body shall have a rub rail along the length of the body on each side and at the rear. The rub rail shall be constructed of minimum 3/16" thick anodized aluminum 6463T6 extrusion. The rub rail shall be a minimum of 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side.

The rub rail shall be of a C-channel design to allow marker and warning lights to be recessed inside for protection. The top surface of the rub rail shall have a minimum of 5 serrations raised .1" high with cross grooves to provide a slip resistant edge for the rear step and running boards. The rub rail shall be spaced away from the body using 3/16" nylon spacers. The ends of each section shall be provided with a rounded corner piece. The area inside the rub rail C-channel shall be inset with a white reflective material for increased side and rear visibility.

ROLL-UP DOORS

The specified compartments, L1, L2, L3, L6, L7, R1, R2, R3, R6, R7, shall be provided with Robinson brand roll up doors.

The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished

look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

ADJUSTABLE SHELVING TRACKS

Six (6) compartments shall be equipped with vertically mounted tracks for the installation of adjustable shelves. The compartments will be selected at a later date. The tracks shall be of extruded aluminum and attached to the side or back wall(s) with rivets.

ALUMINUM SHELVES

Ten (10) shelves shall be constructed of 3/16" (.187") smooth aluminum plate. 2" lips on the front and the back shall accommodate optional plastic interlocking compartment tile systems. The shelves shall have bi-directional rigidity (side to side and front to back) and one-piece construction. Each shelf shall hold a maximum load of 250 pounds.

If the shelves are in a fixed location, the side and rear lips may be deleted to facilitate shelf installation.

The shelves shall be sized, width and depth, to match the size of the specified compartment, to be selected later. Each shelf shall be mounted in the compartment as directed by the Town.

If the shelf is mounted to adjustable tracks mounted to the back wall, the shelf shall be capable of holding 100#

ADJUSTABLE MOUNTED ROLL-OUT TOOL BOARDS

Four (4) Roll-Out aluminum tool boards shall be provided. The tool board shall be constructed of .25" (1/4) smooth aluminum plate. The tool board shall be sized to the specified compartment available door opening and compartment depth. Location to be determined later. The board shall be mounted on drawer slides, at the top and bottom, which will permit the board to roll out of the compartment up to 36". The slide mechanisms shall have ball bearings for ease of extension and retraction operation and dependable service. The tool board shall be mounted at top and bottom on adjustable tracking for ease of placement. The capacity rating shall be 250 pounds maximum at full extension. The positive lock-in and lock-out mechanism shall be located at the bottom front of the tool board and shall be easily operated with a gloved hand. The tool board shall be located as directed by the Town.

EQUIPMENT MOUNTING ALLOWANCE

An allowance in the amount of \$2,000.00 shall be supplied. This allowance is to be used at the department's discretion for mounting of department supplied equipment and to purchase mounting brackets.

FIRE HOSE STORAGE

The hose bed compartment deck shall be constructed entirely from maintenance free, extruded aluminum. Extrusions shall have an anodized ribbed top surface for maintenance free service life. Extruded aluminum slats shall be 3/4" x 7 1/2" and shall be riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose. The hose bed compartment shall be free of sharp edges and projections to prevent hose damage.

The hose bed sides shall consist of aluminum plate and diamond plate welded, from the backside, into a framework of 3" x 3" x 3/16" aluminum slotted extrusions welded both vertically and horizontally for high rigidity. The hose bed shall feed into a deployment chute located on the right side body. The hose bed shall have a capacity of 500' of 4" large diameter hose.

"GATOR GRIP" STEP SURFACES

All body exterior step surfaces shall be provided with an aggressive skid-resistant surface in accordance with current NFPA requirements.

Aluminum diamond plate steps shall include a multi-directional, aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

AUXILIARY GROUND PADS

Auxiliary ground pads shall be 24" x 24" x 1/2" thick aluminum plates. They shall have a grab handle and shall be mounted in a lift-up, slide-out bracket that is mounted under the vehicle next to each stabilizer.

AERIAL TURNTABLE ACCESS STEPS

A pair of pocket style access steps shall be provided at the back of the vehicle to reduce the stepping height from the ground to the turntable staircase. The rung type steps shall be constructed of aluminum extrusions and store flush with the rear rub rail. The rung type steps shall have skid-resistant oval rungs. The steps shall extend by a pull-tab under the rub rail. In the deployed position, the bottom rung shall be angled away from the rear body to provide easy staircase access. Each step shall be approximately 10" wide and come with a ball and socket-locking device to hold the steps in. A maintenance free slide mechanism incorporating a shoulder bolt on each end of the rung step assembly shall permit easy deployment and jam resistant slide system. The bolt-on slide track assembly under the tailboard shall not reduce the vehicle angle of departure.

AIR BOTTLE RACK

An air bottle rack, constructed of 1/8" smooth aluminum plate and 8" aluminum pipe shall be provided. The rack shall be capable of holding sixteen (16) breathing air bottles.

FRONT UPPER LEVEL WARNING LIGHTS

Two (2) Federal Signal Mini-AeroDync 22I 22" light bars shall be mounted on the cab roof -- one (1) on each side of the aerial ladder when it is in its stored (travel) position -- to comply

with NFPA 1901. Each light bar shall have a red lens with two (2) 95 flashes per minute (fpm) 55-watt halogen rotators and two (2) V-shaped diamond mirrors.

FEDERAL Q2B SIREN

Chrome plated and exterior mounted Federal 10" Q2B coaster siren shall be installed on top of the front bumper extension. The siren shall be operated from a floor mounted foot switch, one for each the driver and officer. An electric siren brake switch shall be located on the switch panel.

ELECTRICAL SYSTEM

All electrical equipment installed by the vehicle manufacturer shall conform to current automotive electrical system standard and the requirements of the applicable NFPA Vehicle Standard.

Wiring shall be individually and permanently function and color coded every three (3) inches on the insulation. The insulation shall meet SAE standard J1128 in its latest edition for GXL or SXL temperature rating.

All exposed wiring shall be run in a loom with a minimum 289 degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members along the entire run. At any point where wire or looms must pass through metal, rubber grommets shall be installed to protect the wire from abrasion.

The main low voltage chassis to body interface point and distribution panel shall be provided at the front of the body in a location providing easy service access. The distribution panel shall be labeled and shall contain body electrical relays and wire connection bar. The distribution panel shall be located so as not to reduce useable compartment space. An electrical harness quick disconnect shall be provided to facilitate removal of the body in the future.

Electrical connections in exposed areas shall be made using heat shrink or weather proof connections. All circuits shall be protected with automatic reset circuit breakers.

All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. Light switches shall be of the rocker type with integral indicator light to show when the circuit is energized. All switches shall be appropriately identified as to function.

Cab and Body Lighting

Clearance lights and reflectors shall include two (2) red clearance lights, four (4) red rectangular reflectors, two (2) amber rectangular reflectors, and three (3) red marker lights centered at the rear step, recessed in the rub rail. All Clearance lights shall be Truck-Lite LED.

Two rectangular shaped marker lights with an amber colored lens shall be installed on either side of the vehicle body, recessed in the rub rails at the front of the body and just forward of the rear axle. The front body marker light shall be wired to the turn indicator. All Marker lights shall be Truck –Lite LED.

A rectangular shaped marker light with a red colored lens shall be installed at the trailing edge on either side of the vehicle body, recessed in the rub rail. All Marker lights shall be Truck –Lite LED.

One (1) 4" circular single bulb light shall be mounted in each body compartment and shall be

wired to a master on/off rocker switch on the cab dash. The light shall be in a resilient shock absorbent mount for improved bulb life. The wiring connection shall be made with a weather resistant plug in style connector. A single water and corrosion resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall only allow the light to illuminate if the compartment door is open. In addition, the switch shall activate a 2" red flashing light located in the cab to alert the driver that a cab or body door is open.

A compartment light with a switch shall be installed to illuminate the pump area for service.

A license plate light shall be installed on the rear of the vehicle.

Step Lights

A recessed 4" light with clear lens shall be provided to illuminate the rear step area. (Top mount applications shall include the transverse walkway). Step lights shall be activated with work lights switch in cab when the park brake is set.

The vehicle shall have sufficient lights to properly illuminate the work areas, steps, walkways and ground areas around the vehicle. Areas under the driver and crew area exits shall be activated automatically when the exit doors are opened. Ground area lights shall be switched from the cab dash with the work light switch.

Back-up Alarm

An electronic back-up alarm shall be supplied. The 97 dB(A) alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse.

Electrical System Load Manager

The vehicle's electrical system shall be equipped with a load management device. The load manager shall be a one-touch device designed so that it shall be protected against reverse voltage and electrostatic damage. The load manager shall be a user programmable device and shall be able to manage up to eight items.

The load manager system shall include the following features:

- Main battery monitoring
- Electrical load sequencing, in priority, from 1 to 8. The sequencer shall sequence loads on at half-second intervals.
- Electrical load shedding tied through the parking brake and only shed items during stationary vehicle operations. Load shedding is to be the reverse order of load sequencing. If a load has been shed it shall be reactivated once the park brake has been released.
- Automatic fast idle activation shall occur before load shedding. The fast idle is to be activated whenever the parking brake is set and the system voltage drops below 12.8 volts for at least one minute. The fast idle is to remain on for a minimum of 10 minutes and until a minimum of 13.0 volts are achieved.
- Visual and audible low voltage alarm control.
- Digital display for diagnostics and status information.
- Test button to cycle all loads and the ability to verify load shedding sequences without draining the battery.

- Override switch shall be provided, with label, to override operation of the management system, per NFPA requirements.

The vehicle low voltage electrical system shall be tested in compliance with current NFPA requirements. A third party testing service shall perform testing and certification.

SIREN FOOT SWITCH

Heavy duty metal floor mounted foot switches shall be installed where specified to operate the audible warning devices.

SWITCH HORN BUTTON 2 POSITION

A two (2) position rocker switch shall be installed in the cab dash and properly labeled to enable operator to activate one of the following from the steering wheel horn button: OEM Traffic horn or air horn.

REAR UPPER LEVEL WARNING LIGHTS

One (1) red and one (1) amber Federal Signal Sentry model SY12FS rotating light with a polycarbonate base, a single 55-watt halogen lamp, and a twist-on lexan dome shall be mounted at the upper rear of the vehicle to comply with NFPA 1901. Each light shall produce 80,000 candela minimum and produce 175 flashes per minute. The warning light on the left side of the vehicle shall have a red dome, and the warning light on the right side shall have an amber dome.

LED LIGHT PACKAGE

Ten (10) Federal Signal GEN III LED (Light Emitting Diode) light heads with red diodes shall be provided.

The light heads shall be mounted as close to the corner points of the vehicle as is practical as follows:

- Two GEN III light heads on the front of the vehicle facing forward.
- Two GEN III light heads on the rear of the vehicle facing rearward.
- Two GEN III light heads each side of the vehicle, one each side at the forward most point (as is practical), and one each side at the rearward most point (as is practical).
- Two GEN III light head's shall be mounted, one each side of the vehicle, centrally located to provide midship warning lighting.

All warning devices shall be surface mounted in compliance with NFPA standards. Includes an external flasher.

UNITY DECK LIGHTS

Two (2) Unity model AGS4413 6" chrome-plated 12-volt, 35-watt floodlights shall be installed at the rear of the vehicle. Each light shall be manually operated by an on/off switch at the light.

600 SERIES TAIL LIGHTS

Two (2) Whelen model 600 series L.E.D. (Light Emitting Diode) lights with one (1) Whelen 600 series halogen light shall be installed in a Cast 3 housing in a vertical position each side at rear, in place of standard and wired with weatherproof connectors.

Light functions shall be as follows:

- L.E.D. red running light with red brake light in upper position.
- L.E.D. amber populated arrow pattern turn signal in middle position.
- Halogen 27 watt clear backup light in lower position.

A one-piece polished aluminum trim casting shall be mounted around the three (3) individual lights in a vertical position.

ONAN 15,000 WATT HYDRAULIC GENERATOR

An Onan 15KW side draft hydraulic generator, model # 15RBAA, shall be provided and installed in the dunnage area under the aerial. The unit shall come equipped with modular generator unit (which includes the hydraulic motor and filter, generator, and cooler), variable displacement hydraulic pump, hydraulic reservoir and a gauge panel.

The gauge panel shall display voltage, hour meter, frequency and amperage. The hydraulic motor, generator, blower, cooler, and necessary hydraulic components are enclosed in stainless steel housing. The housing is lined with acoustical material to reduce noise levels.

The modular generator unit shall be 39.00" long x 15.80" wide x 13.70 high. The reservoir shall be mounted separately. The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).

A PTO engage switch and generator control switch shall be mounted on the cab instrument panel to engage the PTO and start the generator.

Rating and capacities

Rating:	15,000 watts continuous
Volts:	120/240 volts
Phase:	Single 4 wire
Frequency:	60 Hz
Amperage:	125.00 amps @ 120 volts or 62.50 amps @ 240 volts
Engine speed at engagement:	Below 1000 RPM
Operation range:	975 to 2500 RPM
	600 to 2500 RPM Aerial Only

The generator shall be tested operating at 100 percent of its name plate voltage for a minimum of 2 hours in accordance with current NFPA 1901 standards.

Notes:

- *All ratings and capacities shall be derived utilizing current NFPA 1901 test parameters.
- *Extreme ambient temperatures could affect generator performance.

TWIST LOCK RECEPTACLE

Four (4) 20 amp, 110 volt (NEMA #L5-20) twist lock receptacles with a weatherproof cover plate shall be installed as specified by the department.

TWIST LOCK RECEPTACLE

One (1) 30 amp, 220 volt (NEMA #L6-30) twist lock receptacle with a weatherproof cover plate shall be installed as specified by the department.

QUARTZ LIGHT

Two (2) Kwik-Raze model 39 Magnafire quartz light head with 900-watt, 220-volt halogen IR bulb rated at 32,000 Lumens mounted on a Kwik-Raze model 600 permanent mount non-telescoping base.

The light assembly shall be mounted on the body as specified. The pole shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired angle.

TELESCOPIC QUARTZ LIGHT

Two (2) Kwik-Raze model 39 Magnafire quartz light heads with 900-watt, 220-volt halogen IR bulb rated at 32,000 Lumens mounted on a Kwik-Raze model 500 bottom raising aluminum telescopic pole with up indicator switch.

The light assembly shall be externally mounted on the rear of the cab, one each side. The pole shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired height.

BREAKER PANEL

An eighteen (18) place breaker box with up to eighteen (18) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according to the generator output. The breaker box will be located in the specified compartment, not to exceed 12' run of wire.

Dimensions: 20.92" high x 14.25" wide x 3.75" deep.

ELECTRIC CORD REELS

Two (2) permanently mounted Hannay model ECR 1616-17-18 electric rewind electric cord reels with 200' of black 10 gauge 3 conductor type SOWA cord rated 20 amps @ 110 volts shall be installed as specified. The cord shall be terminated at the end with a twist lock receptacle. A rewind button shall be mounted as specified.

100' AERIAL DEVICE**Aerial Ladder Requirements**

It is the intent of these specifications to describe a telescopic aerial ladder of the open truss design that is compliant with NFPA 1901 (1999 edition) Chapter 18 sections 18-2 through 18-6 and sections 18-17 through 18-25. Some portions of this specification exceed minimum NFPA recommendations and are to be considered a minimum requirement to be met.

The aerial ladder shall consist of four extruded aluminum telescopic ladder sections operating from -2 degrees to 82 degrees and designed to provide continuous egress for firefighters and

civilians from an elevated position to the turntable.

The aerial device shall have a vertical height of 100' at full extension and elevation. The measurement of height shall be consistent with NFPA 1901 section 18-2.2.

The rated horizontal reach shall be 92'. The measurement of horizontal reach shall be consistent with NFPA 1901 18-2.3. The measurement shall be from the outermost rung at full extension to the centerline of turntable rotation.

The aerial shall have a maximum stabilizer spread of 11' from pin to pin.

Aluminum Aerial Ladder

The aerial ladder shall exceed the requirements of NFPA 1901 18-2 Aerial Ladder Requirements as detailed in these specifications. To insure a high strength to weight ratio and an inherent corrosion resistance, the aerial ladder shall be completely constructed of high strength aluminum. All side rails, rungs, handrails, uprights and K-braces shall be made of structural 6061T6 alloy aluminum extrusions. All material shall be tested and certified by the material supplier. All ladder sections shall be semi-automatically welded by inert gas shielded arc welding methods using 5356 aluminum alloy welding wire. Structural rivets or bolts shall not be utilized in the ladder weldment sections.

Due to the unpredictable nature of fire ground operations, a minimum safety factor of 2.5 to 1 is desired. This structural safety factor shall apply to all structural aerial components including turntable and torque box stabilizer components. Definition of the structural safety factor shall be as outlined in NFPA 1901 A-18-20.1:

DL = Dead load stress. Stress produced by the weight of the aerial device and all permanently attached components.

RL = Rated capacity stress. Stress produced by the rated capacity load of the ladder.

WL = Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system.

FY = Material yield strength. The stress at which material exhibits permanent deformation.

$$2.5 \times DL + 2.5 \times RL + 2 \times WL \text{ equal to/less than } FY$$

The minimum NFPA specification is exceeded in this paragraph by requiring safety margin above 2 to 1 while flowing water.

The stability factor or tip over safety margin shall be a minimum of 1.5 to 1 as defined by NFPA 1901 18-21.

An independent engineering firm shall verify the aerial safety factor. Design verification shall include computer modeling and analysis, and extensive strain gauge testing performed by an independent registered professional engineer. Verification shall include written certification from the independent engineering firm made available by the manufacturer upon request from the Town.

All welding of aerial components, including the aerial ladder sections, turntable, torque box and outriggers shall be performed by welders who are certified to American Welding Society Standards D1.1, D1.2 and D1.3 as outlined in NFPA 1901 18-22.3.

The weldment assemblies of each production unit shall be tested visually and mechanically by an ASNT certified level II non-destructive test technician to comply with NFPA 1901 18-22.2.

Testing procedures shall conform to the American Welding Society Standard B1.10 Guide for non-destructive testing. Test methods may include dye penetrate, ultrasound and magnetic particle where applicable.

Each ladder section shall consist of two (2) heavy extruded aluminum side rails and a combination of aluminum rungs, tubular diagonals, verticals and two (2) full-length handrails. The rungs on all sections, except the fly section, shall be K-braced for maximum lateral stability. This K-bracing shall extend to the center of each rung to minimize ladder side deflection.

The ladder rungs shall be designed to eliminate the need to replace rubber-rung covers. The rungs shall be spaced on 14 inch centers and have integral skid-resistant surface as outlined in NFPA 1901 18-2.5. An oval shaped rung shall be utilized to provide a larger step surface at low angles and more comfortable grip at elevated positions. The minimum design load shall be 500 pounds distributed over a 3 1/2 " wide area per rung as outlined in NFPA 1901 18-2.5.

The aerial ladder shall exceed NFPA 1901 sections 18-2.6 and 18-2.8 governing the minimum ladder section width and handrail height.

Section	Width	Height
Base Section	36"	28-1/2"
Second Section	29-3/4"	25"
Third Section	24-3/8"	21 1/2"
Fly Section	19-3/4"	18"

Ladder Extension Mechanism

Both power extension and retraction shall be furnished and meet the requirements of NFPA 1901 section 18-19, 18-20.3, and 18-5.3. Extension shall be by way of two (2) extending cylinders mounted on the underside of the base section of the ladder.

Extension Cylinder Size

Bore	3 1/4"
Stroke	94"

The cylinders shall operate through a block and tackle cable arrangement to extend and retract the ladder. Maximum extension of the ladder is to be automatically limited by the stroke of the cylinders. The normal operating cable safety factor shall be 5:1 and the stall safety factor shall be 2:1 based on the breaking strength of the cables. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1 to 12.

Ladder Cable Size

1 st section (4-2 extend, 2 retract)	7/16" 6 x 19 galvanized cable
2 nd section (4-2 extend, 2 retract)	5/16" 7 x 19 galvanized cable

3 rd section (4-2 extend, 2 retract)	5/16" 7 x 19 galvanized cable
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The ladder assembly shall consist of four (4) separate weldments that shall extend and retract within each other. Nylatron NSM slide pads shall be utilized between each section to minimize friction. Nylatron NSM slide pads shall be installed at the tip of the lower three sections to accommodate the sliding loads as the ladder is extended.

Aerial Extension Indicator

Reflective tape stripes shall be installed on the ladder top handrail of the base section to indicate extension in 10 foot increments. Numeric indicators shall be placed at 10 foot increments. A reflective dot on the base of the 2nd section shall provide a visual reference for the operator to estimate aerial elevation.

Aerial Finish

To reduce maintenance expense the aerial shall have a natural aluminum swirled finish. Visible inspection of all ladder weld joints shall be permissible without having to remove paint or body filler to reveal the weld bead.

Operation Times

The aerial shall complete the NFPA 1901 18-2.12 time test in no more than 120 seconds. This test involves raising the aerial from the bedded position to full elevation and extension and rotating to 90 degrees. This test is to begin with the stabilizers deployed.

Time to extend ladder	maximum 30 seconds
Time to retract ladder	maximum 30 seconds
Time to raise ladder	maximum 25 seconds
Time to lower ladder	maximum 25 seconds
Time to rotate 180 degrees	maximum 80 seconds

Aerial Ladder Rated Capacity

The aerial device shall have a rated capacity of 550 lbs. consistent with NFPA 18-3.1. The rated capacity shall include 500 lbs. in personnel allowance and 50 lbs. for equipment mounted at the tip of the ladder. The aerial device shall be rated in multiple configurations as outlined in 18-3.4. A sign mounted at the base of the aerial shall communicate the following ratings in the unsupported fully extended configuration while maintaining a 2.5 to 1 safety margin as defined in NFPA 1901. The loads in each configuration are in addition to 50 lbs of equipment mounted at the tip.

Condition #1- Tip load only, no water flowing		
Elevation	Capacity	Pounds
-2 to 45 degrees	2 people	500 lbs.

46 to 82 degrees	3 people	750 lbs.
Condition #2- Distributed loads no water flowing. (These include one person at the tip)		
Elevation	Capacity	Pounds
-2 to 25 degrees	3 people	750 lbs.
26 to 35 degrees	4 people	1000 lbs.
36 to 50 degrees	6 people	1500 lbs.
51 to 82 degrees	10 people	2500 lbs.
Condition #3- Ladder tip load while flowing 1000 gpm with pre-piped waterway		
-2 to 30	1 person	250 lbs.
31 to 82	2 people	500 lbs.

Hydraulic System

The hydraulic plumbing shall consist of hydraulic stainless steel tubing wherever possible in order to:

- Eliminate hose wear.
- Eliminate the corrosion associated with galvanized steel tubing.
- Provide a stronger medium to carry the hydraulic fluid.

An interlock device shall be provided to prevent activation of the aerial ladder hydraulic pump until either the transmission is placed in neutral and the parking brake is set, or the transmission is placed in drive and the rear driveline is disengaged as outlined in NFPA 18-17.2..

The hydraulic system shall be of the latest design and incorporate features to minimize heat build up and provide smooth control of the aerial ladder. The system shall meet the performance requirement in NFPA 18-19.6, which requires adequate cooling under 2 ½ hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial shall comply with NFPA 18-19.1 and have burst strength of 4 to 1. Dynamic sealing components whose failure could cause aerial movement shall have a margin of 2 to 1 on maximum operating pressure per NFPA 18-19.1.1. All hydraulic hoses, tubes and connections shall have minimum burst strength of 3 to 1 per NFPA 18-19.2.

A Hydraulic oil pressure gauge shall be supplied at the base control location per NFPA 1901 18-19.4. In addition, an aerial hour meter shall be supplied at the turntable control console per NFPA 1901 18-19.7. A three color electric light assembly shall be supplied to indicate aerial hydraulic oil level. A red light shall indicate fluid is needed. A yellow shall indicate allowable

oil range. A green light shall indicate a full oil level condition.

Hydraulic power for all operations shall be supplied by a chassis mounted positive displacement pump for consistent pressure and rapid response. The positive displacement vane pump shall be able to supply 14 gallons per minute at a maximum pressure of 3000 psi. The system shall operate between 1000 and 2500 psi with flow controls to protect hydraulic components and incorporate a relief valve set at 2800 psi to prevent over pressurization.

The hydraulic system shall consist of a 55 gallon reservoir mounted to the torque box and plumbed to the hydraulic pump. The tank shall be supplied with a removable top to access tank strainer filter. There shall be plumbing for a supply and return line and a tank drain on the reservoir. The reservoir cap shall be marked per NFPA 18-19.5. Gated valves under the tank shall facilitate filter changes.

The Hydraulic system shall use 5w-20 multi-weight, SAE 32 grade oil and incorporate the following filters to provide dependable service:

reservoir breather	10 micron
magnetic reservoir strainer	125 mesh
pressure filter(torque box)	3 micron
return filter	10 micron

The aerial hydraulic system shall be designed in such a manner that a hydraulic pump failure or line rupture shall not allow the aerial or outriggers to lose position. Hydraulic holding valves shall be mounted directly on cylinders. To insure reliable performance of holding valves, no hoses shall be permitted between a holding valve and cylinder.

The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of NFPA 1901 18-18.5. The auxiliary power unit shall be a 12-volt pump connected to the chassis electrical system. The pump shall provide operation at reduced speeds to store the aerial device and outriggers for road transportation. Self-centering switches shall be provided at the turntable and each stabilizer control station to activate the system. The system shall be designed to provide a minimum of 5 minutes of hydraulic power to operate functions.

Hydraulic power to the ladder shall be transferred from the torque box by a hydraulic swivel.

Aerial Torque Box

The aerial shall utilize an integral torque box design. The integral torque box design shall serve to carry the chassis, body and aerial device as an integrated system. The system design shall provide a lower center of gravity to enhance road performance, a mounting location for under slung stabilizers, and additional space for body compartments. The strength of the torque box shall be a minimum 12.2 million-inch pounds resistance to bending moment. The stabilizers and turntable supports shall be welded directly to the torque box.

Stabilization

The unit shall be equipped with two sets of extendable criss-cross underslung stabilizers. The stabilizers shall have a spread of 11 feet centerline to centerline of the stabilizer pads when fully extended. One set of stabilizers shall be mounted in the forward body area and a second set close to the rear axle to minimize impact on departure angle. The stabilizers shall have an inner

and outer tube that slide on low friction pads for deployment. The stabilizers shall have a tip over safety margin of 1 1/2 times the rated load imposed by the aerial in any position the aerial device can be placed as outlined in NFPA 1901 18-21.1.1. The vehicle stabilization shall be accomplished without the assistance of the chassis suspension or tires in contact with the ground.

The aerial shall be able to sustain a 1 1/3 to 1 rated load on a 5 degree slope downward in the position most likely to cause overturning as outlined in NFPA 1901 18-21.1.2. The maximum ground slope the vehicle can be set up on is 12 percent. On the 12 percent slope the vehicle can be leveled within a 6 percent operating range for the vehicle.

The cylinders shall be supplied with dual pilot operated check valves on each stabilizer cylinder to hold the cylinder in the stowed or working position should a charged line be severed at any point in the hydraulic system. The stabilizers shall level side to side, corner to corner and front to rear on uneven terrain. Stabilizers shall contain safety lock valves and shall require no mechanical pins to assure there will be no "leak down" of stabilizer legs.

The stabilizer lift cylinders shall be sized to maximize ground penetration. The lift cylinders shall be mounted on the side of the torque box for protection and shall have the following dimensions:

Bore: 5"

Stroke: 11"

The stabilizer extension cylinders shall have the following dimensions:

Bore 2"

Stroke: 26"

Each Stabilizer that can be extended from the body shall be supplied with a red warning light as outlined in NFPA 18-21.2.5. A stabilizer extended warning light shall be supplied in the cab to warn the driver of an extended stabilizer condition as outlined in NFPA 1901 11-11. A work light shall be supplied in each stabilizer location to illuminate the stabilizer and ground. The light shall automatically turn on with the deployment of the stabilizer.

The stabilizer ground contact area for each foot pad shall be 10" x 14" without auxiliary pads and 24" x 24" with auxiliary pads deployed. The ground pressure shall not exceed 75 psi with auxiliary pads deployed when the vehicle is fully loaded and the aerial device is carrying its rated capacity in every position. This shall be accomplished with the stabilizer pads deployed, as outlined in NFPA 18-21.2.3.

Stabilizer Controls

Four (4) electric solenoid valves shall control the stabilizers. The control switches shall be located at the rear of the vehicle, so the operator may observe the stabilizers during deployment. An audible alarm with a minimum 87 dba shall also sound while the stabilizers are in motion as required by NFPA 18-21.2.1. Stabilizer deployment shall be completed in less than 60 seconds.

There shall be an interlock that prevents the operation of the ladder until the stabilizers are down and properly set as outlined in NFPA 18-17.4. Four (4) micro switches, one (1) on each jack leg, shall sense when all four-jack feet are in firm contact with the ground. This condition shall be

indicated when all four yellow jack down indicator lights are on and the green interlock light is on. When the vehicle has been leveled, a manual transfer switch shall be used to shift hydraulic power to ladder operations. The interlock system shall have a manual override with access through a door on the rear control panel.

To simplify leveling the vehicle, two color-coded level indicators shall be supplied at the rear of the vehicle. One indicator shall be for front to rear level and the other for side to side level.

Turntable Support Assembly

The aerial ladder turntable assembly shall be mounted at the rear of the vehicle. The turntable support assembly shall be welded to the integral torque box for efficient transfer of aerial loads to the stabilizers and shall permit storage of ground ladders in the center rear of the vehicle. The complete turntable support assembly shall be multi-pass welded to the sides of the combination chassis frame torque box.

The turntable support assembly shall be a steel weldment constructed of four (4) vertical 1/2" x 5" x 5" square tubing with identical tubing welded in between the top ends of the verticals.

A bearing mounting plate shall be welded to the top of the verticals and sides of the horizontals. The bearing mounting plate shall be 43" x 43" and shall have a 1-1/2" thickness. This bearing mounting plate shall be bulk headed to a 3/4" steel plate that is welded to the bottoms of the horizontal tubing. The use of multi-pass welding shall be utilized wherever possible.

A 34-1/4" rotation bearing with a 3" face drive gear shall be bolted to the top of the bearing mounting plate with thirty (30) 3/4" grade 8 plated bolts. The gear tooth shall be stub tooth form.

Upper Turntable

The upper turntable assembly shall attach to the rotation bearing and the base of the ladder.

The turntable platform shall be a one-piece flanged steel plate that is a minimum of 96" in diameter and 3/8" thick. The working platform shall be covered with a non-skid material for operator safety. Three (3) railings 42" high shall be provided along the outside of the turntable disc as outlined in NFPA 1901 18-18.1. There shall be a control pedestal on the left side of the turntable. The turntable assembly shall provide a mounting base for the ladder and elevating cylinders. The turntable assembly shall be bolted to the turntable bearing by twenty (20) 3/4" grade 8 plated bolts.

The ladder pivot point shall connect to the upper turntable assembly by two (2) 2-1/4"ID spherical bearings.

Elevation Mechanism

The aerial shall utilize dual 5" bore 38 1/2" stroke elevating cylinders to attach the upper turntable assembly and bottom of the base ladder section. A 1 3/4" pin and bearing system shall connect to the turntable. A 2" pin and bearing system shall connect to the base section of the ladder. The elevation system shall be designed following NFPA 1901 18-5.1. The elevation hydraulic cylinders shall incorporate cushions on the upper limit of travel. The hydraulic elevation cylinders shall also serve as a locking device to hold the aerial in the stored position for road travel.

Rotation Mechanism

The aerial shall be supplied with a hydraulically powered rotation system as outlined in NFPA

1901 18-5.2. The hydraulic rotation motor shall provide continuous rotation under all rated conditions and be supplied with a spring applied brake to prevent unintentional rotation.

Aerial Electric Power

The aerial shall be equipped with a 2 hydraulic port 24 electrical collector ring swivel to transfer electrical, hydraulic power, and water through the center of the swivel from the chassis to the aerial under conditions of continuous rotation. The sealed swivel shall not require annual maintenance. The wires shall be color-coded and include (8) 10 gauge wires.

Aerial Ladder Operating Position

An aerial ladder operators position shall be supplied as outlined in NFPA 1901 18-4. The operator's position shall be located on the left side of the aerial turntable. The vehicle shall be supplied with labels to warn of electrocution hazard. The control console shall provide a service access door on the front and side of the console to access hydraulic and electrical connections. The electrical panel shall be contained in junction box with labeled wires. The console shall be angled, labeled and supplied with lights for night operation.

Console Cover

A diamond plate contoured hinged cover shall be supplied to protect the console from the elements. The cover shall latch in the stored position and swing away from the console so as not to interfere with sight of the aerial device.

Aerial Ladder Control Levers

The control levers shall be arranged as outlined in NFPA 18-17.6. The first lever from the left shall be the extension control (forward for extend and back for retract). The second lever shall be for rotation (forward for clockwise and back for counter clockwise). The third handle shall control elevation (forward for down and back for up). The aerial shall employ direct hydraulic controls for precise control and dependable service with minimal electrical functions. A ring around the control console shall be provided to prevent unintentional movement as outlined in NFPA 18-17.5.1.

Aerial Intercom System

A two-way intercom system shall be installed to provide communications between the operator's position and tip of the aerial as outlined in NFPA 1901 18-4.2. The speaker/microphone at the tip shall be hands free operation. The system shall consist of a 12 volt transistorized amplifier and two (2) waterproof, send and receive speakers.

Rung Alignment Indicator

A light on the control console shall indicate when the ladder rungs are aligned for climbing.

Aerial Alignment Indicator

A reflective arrow mounted to the body and the turntable shall indicate when the aerial is aligned for travel bed.

Load Indication System

A lighted elevation/safe load indicator diagram shall be located on the lower left side of the base section to indicate safe load capacity at any angle of elevation. The safe load indicator shall be 15" x 15" in size and clearly communicate aerial capacity in any one of the following conditions: tip load, tip load with water flowing, and distributed load at full extension. The chart

shall identify capacity using graphic characters to indicate each 250# increment. The chart shall be equipped with lighting and warn of electrocution hazards from power lines and lightning.

Aerial Waterway

A 1000gpm prepiped waterway shall be supplied as outlined in NFPA 1901 18-6. The waterway shall telescope to the end of the third section (80' level). A waterway of 4" internal diameter shall run through the turntable and a swivel joint to connect to the tubular aerial waterway. The tubular waterway shall run under the aerial ladder. The waterway tubes shall have the following sizes:

Base Section	5" OD
Mid Section	4.5" OD
3 rd Section	4" OD

The tubes shall be constructed of hard coat anodized aluminum and shall be telescopic with the aerial ladder through sealed slip joints. The slip joints shall be designed with grease zerks fittings to facilitate lubrication.

A 1-1/2" drain valve shall be installed and operated from the rear of the vehicle.

The water system shall be capable of flowing 1000 gpm at 100 psi nozzle pressure at full elevation and extension. The friction loss between the tip and below the swivel shall not exceed 100 psi while flowing 1000 GPM as outlined in NFPA 1901 18-6.1.2.

Waterway Relief Valve

An automatic relief valve preset at 220 PSI shall be installed in the aerial waterway to prevent over pressurization of waterway system. The relief valve shall be mounted in the lower portion of the waterway where it enters the aerial torque box frame and dump under the vehicle.

Electric Monitor Travel Range

The nozzle range of the electric monitor shall be 135 degrees through the vertical plane and 90 degrees to either side of ladder center line in the horizontal plane. This water flow capability shall be available at any extension, elevation or position without any restrictions while flowing 1000 gallons per minute. A minimum stability factor of 1.5 to 1 shall be maintained in this configuration.

Ladder Tip Step

Two split design folding steps shall be located near the ladder tip to provide a position for a firefighter using the ladder pip/monitor as outlined in NFPA 1901 18-2.9. The steps shall have a raised surface for traction and cut outs for deployment.

1000 GPM ELECTRIC MONITOR

The aerial ladder shall be equipped with an Akron style 3578 Stream Master electrically controlled monitor. The monitor shall be made from Akron's unique lightweight Pyrolite construction to minimize ladder tip loads. The monitor shall be equipped with an Akron style 5077 Akromatic electrically controlled automatic nozzle capable of discharging 500-1,000 gpm at 80-100 psi nozzle pressure. This water flow capability shall be available at any extension,

elevation, or position without any restrictions while flowing 1,000 gpm. A minimum stability factor of 1.5 to 1 shall be maintained in this configuration.

The range of movement of the electric monitor and nozzle shall be 135 degrees through the vertical plane (90 degrees upwards from a line perpendicular to the aerial ladder and 45 degrees downward), and 180 degrees through the horizontal plane (90 degrees to either side of the aerial ladder center line). The monitor shall be able to move in the horizontal and vertical axis simultaneously.

The monitor relay box shall include solid state components and shall be coated to resist corrosion. The monitor shall have fully enclosed motors and gears with built in manual override capability and quick-attach handles. A battery, which continuously charges from the vehicle power system, shall provide power for monitor movement. Systems which do not utilize a battery shall not be acceptable due to the higher incidence of failure with this type of system.

NO EXCEPTIONS

Control switches for horizontal movement, vertical movement and pattern selection shall be located at the control panel.

Monitor Tip Controls

In addition to the controls at the operator console, electric monitor directional and stream controls shall be installed in close proximity to the monitor on the ladder to allow operation by a firefighter on the ladder.

REAR 4" AERIAL WATERWAY INLET

One (1) 4" inlet shall be provided at the rear of the vehicle and shall be connected to the vertical pedestal waterway piping to supply water to the aerial waterway from an outside source. All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel piping to help prevent corrosion. A 4" NST chrome-plated male adapter with a long-handle chrome-plated 4" NST cap shall be installed on the inlet. A 4" storz adapter shall be supplied.

WATERWAY PRESSURE GAUGE

One (1) weatherproof 2-1/2" compound vacuum pressure gauge with a range of 30-0-600 shall be installed adjacent to the waterway inlet. The function of the gauge is to advise the aerial operator of the pressure within the waterway. The gauge shall be filled with a liquid solution.

FLOWMINDER

The aerial shall be equipped with one (1) Class 1 brand Flowminder for the aerial waterway to digitally display the actual volume of water being discharged in gallons per minute and the total volume of water that has flowed through the waterway.

The readout shall be mounted at the turntable control station.

The Flowminder shall consist of:

- Weatherproof digital flow display with super-bright digits at least 1/2" (0.5") high. The display shall read actual flow and shall switch to total flow when the totalizer button is depressed and held.
- Flow transmitter mounted in the aerial waterway pipe above the swivel. The transmitter shall consist of a weather-resistant black-anodized housing with brass wetted parts with

a double paddle wheel.

- Connecting cables to connect the digital display to the flow transmitter and vehicle power.
- Machined mounting hardware to hold the transmitter in position in the discharge line.

The Flow meter shall be checked and calibrated prior to delivery of the vehicle.

TIP SPOTLIGHTS

There shall be two (2) 12V Collins spotlights with a switch mounted on the tip of the aerial device.

LADDER BASE LIGHTING

Two (2) Unity model AG-S-H floodlights shall be mounted at the bottom of the ladder base section, one on each side. They shall be controlled from the turntable-operating pedestal.

REAR LADDER STORAGE

A ladder storage tunnel shall be provided beneath the aerial device frame work. The ladder tunnel shall have a minimum storage capacity for the 115 feet of ground ladders as per NFPA 1901, with access to the ladders via an opening at the rear.

This tunnel shall be lined with .090" aluminum. The ladders will be held captive top and bottom by aluminum tracks and slide on friction reducing material. All ladders shall be removable individually without having to remove any other ladder. A quick release, device shall keep the ladders secured in the storage area.

REAR PIKE POLE STORAGE

Pike poles shall be stored in a vertical compartment under the right-hand side of the aerial ladder turntable. The compartment shall be 8.5" wide x 25" high x 205" deep. The compartment shall provide a rack of six (6) tubes running fore-aft for the storage of six (6) pike poles -- two (2) 6' poles, two (2) 8' poles, and two (2) 12' poles. The pike poles shall be held in place by a spring-loaded door at the rear of the vehicle.

PIKE POLE MOUNT

There shall be an aluminum tube mounted directly on the ladder for pike pole storage and come with an 8' pike pole.

STOKES BASKET

A Ferno Washington Model #71 orange plastic stokes shall be supplied. The stokes basket shall mount on the right side of the base section of the ladder.

AXE BRACKET

Axe bracket shall consist of one stainless steel blade bracket and one chrome handle restrainer mounted directly on the ladder. One (1) pick head axe shall be supplied.

ROOF LADDER BRACKET

A roof ladder mounting bracket shall be installed on the ladder, and shall be designed to allow

for quick removal of the roof ladder.

Third-Party Flow Test

A flow test shall be conducted to determine that the water system is capable of flowing 1,000 gpm at 100 psi nozzle pressure with the aerial device at full extension and elevation. When the aerial vehicle is equipped with a fire pump, the test shall be conducted using the onboard pump. Intake pressure for the onboard pump shall not exceed 20 psi.

In addition to the flow test, a hydrostatic test shall be done on the waterway system. The permanent water system, piping, and monitor shall be hydrostatically tested at the maximum operating pressure required to flow 1,000 gpm at 100 psi nozzle pressure at maximum elevation and extension.

These results shall be certified by an independent, third-party testing organization, per NFPA 14-13.1 through 14-13.1.3.

10' FOLDING ATTIC LADDER

One (1) Alco-Lite FL-10 10' aluminum folding attic ladder shall be provided. Both ends shall be equipped with molded rubber feet and the ladder shall have handles for easy carrying. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

COMBINATION LADDER

An Alco-Lite CJL-14 14' combination extension/A-frame ladder shall be provided. The ladder may be used as an extension ladder or an 'A' frame ladder.

ROOF LADDER

An Alco-Lite PRL-14 14' roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.

16' ROOF LADDER

One (1) Alco-Lite PRL-16 16' aluminum roof ladder shall be provided. A pair of folding 3/4" (0.75") steel roof hooks shall be attached to one end of the ladder, and a pair of steel spiked feet on the other end. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

ROOF LADDER

An Alco-Lite TRL-20 20' roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.

EXTENSION LADDER BRACKETS

Extension ladder mounting assembly shall consist of a 1/8" diamond plate boot welded to the compartment top and a chrome plated handle to secure the combination ladder into the boot.

EXTENSION LADDER

An Alco-Lite PEL-28 28' two-section extension ladder shall be provided.

EXTENSION LADDER

Two (2) Alco-Lite PEL-35 35' two-section extension ladders shall be provided.

LADDER OPTIONS

An Itemized price shall be given for the substitution of a 45 Foot Bangor Ladder for one of the 35 foot ladders. An Itemized price shall be given for the addition of a "Little Giant" and bracket.

PICK HEAD AXE

A 6 lb. steel pick head axe with varnished wood handle shall be supplied on the aerial.

6' PIKE POLE

Two (2) Ziamatic Plasticore model PCM 6 6' hollow fiberglass pike poles, 1-3/4" (1.75") outside diameter, with painted steel pike shall be supplied.

8' PIKE POLE

Three (3) Ziamatic Plasticore model PCM 8 8' hollow fiberglass pike poles, 1-3/4" (1.75") outside diameter, with painted steel pike shall be supplied. One shall be installed in the pike pole storage tube on the ladder.

12' PIKE POLE

Two (2) Ziamatic Plasticore model PCM 12 12' hollow fiberglass pike pole, 1-3/4" (1.75") outside diameter, with painted steel pike shall be supplied.

WHEEL CHOCKS

Two (2) pairs of wheel chocks for up to a 44" diameter tires shall be supplied and located under the body, one pair per side. Chocks shall be of the folding type.

STORZ SWIVEL CONN 4" FNST 4"

An aluminum 4" female NST swivel x 4" Storz adapter with tethered cap shall be supplied on the aerial waterway inlet.

BREATHING AIR ALLOWANCE

An allowance in the amount of \$13,000.00 shall be supplied.

CAB PAINT

The cab and chassis shall be painted with the highest quality finish for low maintenance, long life, and attractive appearance. The finish shall consist of a corrosion-prevention pre-treatment to all bare metal, a sealer/primer, two coats of base color, and two coats of clear finish.

The paint process shall meet or exceed current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Manufacturer shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The manufacturer shall supply warranty against peeling, cracking, blistering, and corrosion.

Warranty period shall be for a minimum of 10 years. Paint shall be covered 100% for 10 years. Additionally, manufacturer shall provide a lifetime warranty against corrosion perforation. UV paint fade shall be covered in a separate warranty supplied by Akzo-Nobel and shall be for a minimum of seven years. Complete copies of all warranties must be submitted by manufacturer with completed Bid.

The aluminum cab and body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint. Any vertically or horizontally hinged smooth-plate compartment door shall be painted separately to assure proper paint coverage on the body, doorjambs, and door edges.

The paint process shall feature Akzo-Nobel's high-solid LV products and be performed in the following steps:

- Corrosion Prevention - all raw materials shall be pre-treated with the Weather Jacket Corrosion Prevention system to provide superior corrosion resistance and excellent adhesion of the top coat.
- Akzo-Nobel Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance, and a uniform base color.
- Akzo-Nobel High Solid LV (Top coat) - a lead free, chromate-free, high-solid acrylic urethane top coat shall be applied, providing excellent coverage and durability. A minimum of two coats shall be applied.
- Akzo-Nobel High Solid LV (Clear coat) - a high-solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two coats shall be applied.

Any location where aluminum is penetrated after painting for the purpose of mounting steps, handrails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment. The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, handrails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. The gloss rating achieved shall be a minimum of 85 units or greater.

The chassis frame and undercarriage components shall be finished painted black.

The vehicle wheels shall be painted to match the exterior color of the color of the vehicle unless otherwise specified. The vehicle wheels shall be trimmed in silver paint to complete the wheel finish.

TWO-TONE CHASSIS PAINT

The two-tone chassis color shall consist of a specified color of Akzo-Nobel lead-free, chromate-free high solid LV acrylic urethane paint applied to the upper section of the cab. The paint break line shall be in the specified location. Cab colors shall be white over red, exact codes shall be supplied by the department.

BODY PAINT FINISH

Paint process shall meet or exceed current State regulations concerning paint operations.

Pollution control shall include measures to protect the atmosphere, water and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

Contractor shall supply warranty against peeling, cracking, blistering, and corrosion. Warranty period shall be for minimum of 10 years. Paint shall be covered 100% for 10 years. Additionally, contractor shall provide a lifetime warranty against corrosion perforation. UV paint fade shall be covered in a separate warranty supplied by Akzo-Nobel and shall be for a minimum of seven years. Complete copies of all warranties must be submitted by contractor with completed Bid.

The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment door shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Akzo-Nobel's high solid LV products and be performed in the following steps:

- Corrosion Prevention - all raw materials shall be pre-treated with the Weather Jacket Corrosion Prevention system to provide superior corrosion resistance and excellent adhesion of the top coat.
- Akzo-Nobel Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Akzo-Nobel High Solid LV (Top coat) - a lead free, chromate-free high solid acrylic urethane top coat shall be applied, providing excellent coverage and durability. A minimum of two coats shall be applied.
- Akzo-Nobel High Solid LV (Clear coat) - High solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two coats shall be applied.

Any location where aluminum is penetrated, after painting, for the purpose of mounting steps, handrails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment. The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, handrails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. The gloss rating achieved shall be a minimum of 85 units or greater.

CHASSIS AND BODY STRIPE

A straight chassis and body Scotchlite stripe, 6" in width shall be supplied. The stripe shall be NFPA compliant with the color and location to be specified by the Town.

Lettering is to be supplied by the department.

REFLECTIVE TAPE ON JACKS

The four outriggers that protrude beyond the side of the body shall be striped with white reflective tape. The tape shall be visible from the front or rear of the unit.

AERIAL CERTIFICATION

The manufacturer shall include a statement from a licensed and registered independent, third-party professional engineer employed by an independent, third-party engineering firm attesting that the aerial ladder on the unit bid is designed and will be provided with a minimum 2.5 to 1 structural safety factor based on the yield strength of the material. The safety factor shall include:

$$2.5 \times DL + 2.5 \times RL + 2.0 \times WL \text{ equal to/less than } FY$$

DL = Dead load stress. Stress produced by the weight of the aerial device and all permanently attached components.

RL = Rated capacity stress. Stress produced by the rated capacity load of the ladder.

WL = Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system.

FY = Material yield strength. The stress at which material exhibits permanent deformation.

The safety factor shall be applicable to all components used in the construction of the aerial ladder, including all substructure and stabilizer components. Due to the unpredictable nature of fire ground operations, a minimum safety factor of 2.5 to 1 is required. This structural safety factor shall apply to all structural aerial components including turntable and torque box stabilizer components. Definition of the structural safety factor shall be as outlined in NFPA 1901 A-18-20.1

The manufacturer shall also include a statement from a licensed and registered independent, third-party professional engineer employed by an independent, third-party engineering firm attesting that the aerial and stabilizer system on the unit bid is designed and will be provided with a minimum 1.5 to 1 stability factor or tip-over safety factor. This stability factor shall include 1.5 times the dead weight of the aerial, plus 1.5 times the rated load capacity. The stability factor shall apply when the vehicle is on a level surface. A stability factor of 1 1/3 times the rated load capacity shall apply when it is on a 5-degree downward side slope with the aerial in the direction most likely to cause overturning.

All quality control testing shall be performed by an ASNT-certified Level II Non-Destructive Test Technician. The aerial shall be tested in compliance with the current editions of NFPA 1901 and NFPA 1914. All sub-assemblies are to be inspected before assembly and body mounting.

Each aerial section shall be tested prior to the assembly of the complete aerial device. Each section shall be subjected to a visual weld inspection to assure the integrity of the weldment. Die penetrant shall be used as required to qualify suspected weld defect indications. All turntable mounting bolts, cylinder anchor pins, outrigger anchor pins, aerial hinge pins, and other critical mounting components are subjected to ultrasonic testing to detect any flaws.

A magnetic particle test shall be conducted on the torque box, aerial support structure, outriggers, outrigger support structure and all other structural ferrous aerial components. This test shall be performed to assure the integrity of the weldment.

After the aerial is assembled and installed on the vehicle, an operational inspection shall be made and the aerial shall be tested to comply with the applicable standards in the current editions of NFPA 1901 and NFPA 1914.

In addition to the above tests, the aerial shall successfully complete four (4) additional operational tests:

1. The completed vehicle shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial shall lift a test weight equal to 1 1/2 times the rated tip load capacity, as specified herein, with the aerial at full extension, 0 degrees elevation, and rotated 90 degrees to either side of the truck chassis. The test weight shall be lifted from 0° to 15-20°. The test weight shall be suspended from the position required by NFPA 1901 standards. The aerial shall lift the test weight smoothly and evenly with no twisting or jerking. This test shall be performed at the normal hydraulic system relief valve setting. No temporary adjustments to the relief valve shall be allowed.
2. The completed vehicle shall be placed on a firm, level surface with the aerial stabilizers extended and down. A test weight equal to 1.5 times the aerial rated tip load capacity, shall be suspended from the position required by NFPA 1901 standards with the aerial in the straight-ahead position. The aerial shall then be rotated a full 360 degrees around the vehicle with the aerial at full extension and at 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability.
3. This test shall be performed with no water in the tank that would act as a counterbalance in order to simulate a worst-case condition.
4. The completed vehicle shall be placed on a firm surface having a minimum 5 degrees side slope with the aerial stabilizers extended and down. A test weight equal to 1 1/3 times the aerial rated tip load capacity, shall be suspended from the position required by NFPA 1901 standards with the aerial in the straight-ahead position. The aerial shall then be rotated 90 degrees to the downhill side with the aerial at full extension and at 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability. The amount of deflecting shall not exceed 2".
This test shall be performed with no water in the tank that would act as a counterbalance in order to simulate a worst-case condition.
5. The completed vehicle shall be placed on a firm, level surface with the aerial stabilizers extended and down. A test weight equal to 2.0 times the aerial rated tip load capacity, shall be suspended from the position required by NFPA 1901 standards with the aerial to the rear position at full extension and at a horizontal position. After ten (10) minutes, the weight shall be removed, and the aerial shall be inspected for any abnormal twist or deflection.

Upon satisfactory completion of all inspections and tests, an independent, third party engineering firm shall submit a certificate indicating that all specified standards have been met.

STATEMENT OF WARRANTY

1-Year Standard

The vehicle manufacturer shall provide a full 1-year standard warranty. All components manufactured by the vehicle manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the Bid.

FRAME WARRANTY

Lifetime Frame

The vehicle manufacturer shall provide a full lifetime frame warranty. This warranty shall cover all vehicle manufacturer designed frame, frame members, and cross members against defects in materials or workmanship for the lifetime of the covered vehicle. A copy of the warranty document shall be provided with the Bid. Frame warranties that do not cover cross members for the life of the vehicle shall not be acceptable. **NO EXCEPTIONS**

STRUCTURAL WARRANTY

10-Year/100,000-Mile Structural

The vehicle manufacturer shall provide a comprehensive 10-year/100,000-mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the vehicle manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the Bid.

PAINT AND CORROSION WARRANTY

10-Year Paint and Lifetime Corrosion Perforation

The vehicle manufacturer shall provide a full 10-year paint and lifetime corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner. Paint shall be covered 100% for 10 years and corrosion perforation shall be covered 100% for the life of the vehicle with its original owner. A copy of the warranty document shall be provided with the Bid.

UV paint fade shall be covered in a separate warranty supplied by Akzo-Nobel and shall be for a minimum of 7 years.

AERIAL DEVICE - TWENTY YEAR STRUCTURAL INTEGRITY LIMITED WARRANTY

The aerial manufacturer shall provide a 20 year structural integrity warranty on the aerial device. This warranty shall cover structural components and shall be extended for a period of 20 years after the date on which the vehicle is delivered to the Town. A copy of the warranty document shall be provided with the Bid. Please refer to warranty document for complete details and exclusions.

ELECTRONIC MANUALS

Two (2) copies of all operator, service, and parts manuals **MUST** be supplied at the time of delivery in electronic format (CD-ROMs) -**NO EXCEPTIONS!** The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire vehicle and fire fighting systems.

- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The CD-ROM shall incorporate a navigation page with electronic links to the operator's manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The CD must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer's location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.