

Invitation for Bid Packet

Ashfield Fire Truck

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**Town of Ashfield
Invitation for Bid - Fire Truck**

Sealed bids for delivery of one Fire Truck Apparatus, as detailed in attached specifications, or equal, will be received by the Town of Ashfield, Massachusetts, at the Ashfield Town Hall, 412 Main Street, Ashfield, MA 01330 on or before Monday, June 5, 2023 at 7:00 PM at which time they will be opened and publicly read by the Ashfield Select Board. The Town Hall's clock in Lower Hall shall be the sole determining factor of time.

The Town of Ashfield is the awarding authority and reserves the right to determine what is "equal" if "or equal" components or services are proposed. In the event Ashfield Town Hall is officially closed for weather or emergency, the bid will be opened the next open day at the same time. Specifications are available only through the Town of Ashfield website (www.ashfield.org) in order for all recipients to be notified of any addenda or deadline changes.

This bid is being undertaken under MGL Chapter 30B. All bidders shall be familiar with the law's requirements.

Any questions pertaining to the bid requirements or documents should be directed, in writing, to Paul McLatchy III, Town Administrator/Chief Procurement Officer, Town of Ashfield. Questions may be emailed to townadmin@ashfield.org or mailed. Written responses will be emailed to all bidders on record who have requested the IFB from the town.

Any addenda must be acknowledged on the Bid Price Form. Failure to do so may result in rejection of bid. If you received this bid form from any other source than the Town of Ashfield, you must register to receive any addenda.

Bids should be placed in a sealed envelope marked "ASHFIELD FIRE TRUCK– SEALED BID" in the lower left-hand corner and hand delivered or mailed to the Ashfield Town Hall. No faxed or emailed bids will be accepted. If requested, a receipt indicating this date and time will be given to any bidder delivering a bid in person. A bidder may correct, modify, or withdraw a bid by written notice received by the Town of Ashfield prior to the time and date set for the bid opening. Bid Modifications must be submitted in a sealed envelope clearly labeled "Modification No...." Each modification must be numbered in sequence and must reference the original IFB. After the bid opening, a bidder may not change any provision of the bid in a manner prejudicial to the interests of the Town or fair competition. Minor informalities will be waived or the bidder will be allowed to correct them. If a mistake and the intended bid are clearly evident on the face of the bid document, the mistake will be corrected to reflect the intended correct bid, and the bidder will be notified in writing; the bidder may not withdraw the bid. A bidder may withdraw a bid if a mistake is clearly evident on the face of the bid document, but the intended correct bid is not similarly evident.

All bids must be accompanied by the Bid Price Form with Bid Signature Page/Corporate Authorization which includes a Certification of Tax Compliance/Non-Collusion, Affidavit of

Compliance, Tax Identification Number, executed by an authorized agent of the bidder. Any bid that does not include this document, fully completed, will automatically be deemed non-responsive and will not be considered. Additional material may be included with the bid. Any or all Bids may be accepted or rejected as the Town determines is the best interest of the public.

The sealed bid should include the entire Invitation for Bids Package so that no pages requiring acknowledgement will be forgotten.

Each bidder must submit one (1) original, one (1) copy of their bid, and one (1) digital version on a USB flash drive.

TOWN OF ASHFIELD

Paul McLatchy III, Town Administrator & Chief Procurement Officer

May 1, 2023

The Town of Ashfield does not discriminate on the basis of race, color, national origin, sex, age, disability, or gender with respect to admission to, access to, or operation of its programs, services or activities.

IMPORTANT DATES

ADVERTISEMENT

Advertisement for Supplies and Services (M.G.L. Chapter 30b)

- *Greenfield Recorder Newspaper Legal Ad – May 1, 2023*
- *Town of Ashfield Webpage – April 26, 2023*
- *Goods and Services Bulletin – May 1, 2023*
- *CommBUYS – April 27, 2023*

CRITICAL DATES

- *Deadline for written questions – Monday, May 15, 2023 at 4 PM*
Written questions should be submitted to townadmin@ashfield.org or by mail.
- *If needed, Addenda to be sent by Friday, May 19, 2023 at 4 PM*
- *Deadline for Submission of Bids – Monday, June 5, 2023 at 7 PM*

ESTIMATED DATES

- *Review of Bids – June 5, 2023 through June 20, 2023*
- *Equipment Delivered – within 300 calendar days of contract execution*

GENERAL BID INFORMATION

(1) Award

In compliance with MGL Ch. 30B, §5, the contract resulting from this bid will be awarded to the lowest responsible and responsive bidder based upon bid price, past performance and reliability of the bidder, quality of product or service at the discretion of the Town of Ashfield. The Select Board reserves the right to accept or reject any or all bids if it is in the best interest of the town.

(2) Period of Contract

The delivery of the vehicle shall be no later than 300 days from the execution of a contract. A penalty of \$100.00 per day will be assessed to the vendor for non-delivery after the specified date in the contract.

(3) Intent of Specifications

It is the intent of these specifications to cover the furnishing and delivery to the purchaser of a complete vehicle, current NFPA compliant, equipped as hereinafter specified or equal. The Town reserves the right to determine what is equal. With a view to obtaining the most acceptable equipment, these specifications cover minimum requirements as to the type of construction, finish, and tests to which the apparatus must conform, together with certain details as to equipment to be furnished. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the vendor, who shall be solely responsible for the design and construction. Components specified by brand name, model, dimension or capacity are thought to be available to all Manufacturers. Substitutes or alternates claimed to be equal will be evaluated but may not be accepted by the Awarding Authority. The equipment shall conform to the requirements of the current (at the time of bid) NFPA standard to the extent as specified herein.

(4) Bid Requirements

The bid form provided herein shall be completed and returned with the appropriate "yes" or "no" marked by each paragraph in the "Bidder Comply" column by number. A paragraph indicated with both the "yes" and "no" column marked shall be considered non-responsive and treated accordingly.

“Or Equal” submissions must be described on separate document with each line # listed as provided in the bid specifications to easily refer to the substitutions.

Each bidder shall submit their own equipment specifications, detailing their construction. This is necessary to evaluate the bidder's actual intent of building the equipment as specified. Bidder shall supply one sales blueprint (18” x 24” or larger) as well a color rendering of the vehicle showing at the least, the driver’s flank view. The rendering does not need to show all fine details or measurements.

Bid specifications are attached in Appendix “E”.

(5) Qualification of Bidders

Bids will only be considered on vehicles constructed in the continental United States, whose manufacturers have an established reputation of permanency and reliability in the field of fire apparatus construction. Each manufacturer shall furnish satisfactory evidence of their ability to construct the apparatus as specified and shall state the location of the factory where the complete apparatus will be built. If the components are manufactured in different facilities, the location of each facility shall be stated in the bid. Experimental apparatus will not be acceptable.

Bidders must submit a complete list of all fire trucks they have built in the past 2 years including contact names and current telephone numbers. References that are not current and cannot be contacted may result in disqualification. The bidder must submit no less than 5 references. The Town reserves the right to investigate other contracts undertaken by the bidder other than those provided in the References.

(6) Service Requirements

The bidder must offer emergency on-site or mobile service, as needed. Also, the bidder shall offer services including overseeing collision repairs and painting. Service is critical. The ability of the bidder to provide prompt and capable future service for the equipment supplied will be considered a Minimum Criteria. The Town of Ashfield requires that service facility must be available within 150 miles of the Town of Ashfield. The bidder must have a full-service facility and be staffed by full-time technicians. Technicians must be factory trained in the operation and repair of all the equipment supplied with full authorization from the manufacturer. The facility shall maintain an inventory of major system parts including major parts and electrical items.

(7) Apparatus Pre-Delivery

The Apparatus shall receive a pre-delivery check over & cleaning prior to final delivery to the department.

(8) Delivery and Training Requirements

The truck shall be delivered under its own power to assure adequate break-in while under warranty. Vendor shall provide familiarization training on the vehicle (no less than 6 hours in duration) following NFPA 1901 (2016 edition) upon delivery. The training shall be performed by both the salesperson of record and the product specialist.

(9) Temporary Registration

A temporary registration shall be applied to the vehicle prior to delivery so as to ensure the department can start the driving portion of predelivery training without waiting for title and registration documents to arrive. These items to be provided by the dealer or a registered & bonded auto dealer.

(10) Insurance

Manufacturer's and service center's Liability Insurance certificate shall be provided by the successful bidder upon award of the contract, equal to or exceeding \$10,000,000. The manufacturer must also carry statutory worker's compensation insurance.

(11) Bid Bond

Each bid shall be accompanied by a bid bond in the amount five (5) percent of the bid price. Bids submitted without a bond will not be read. The bid bond must be issued by an Insurance Company registered with the Insurance Commissioner of the Commonwealth of MA or by Bank/Treasurer's Check payable to the Town of Ashfield.

Bonds must be signed by an Officer of the Bidder's Company. Bonds issued by non-registered or foreign Insurance Companies will be immediately rejected. The cost of the Bid Bond shall be borne by the vendor. In the event the bidder refuses to sign a contract/purchase and sale agreement at the terms in the bid, the bond will be forfeited to compensate the town for having to re-bid for the apparatus.

(12) Contract and Payment

These specifications, together with any documents required herein, shall be included in the final contract. A contract substantially in accord with the sample contract, attached, is expected to be executed.

Payment will be made within 45 days of acceptance and completion and delivery of the entire apparatus, training, delivery and manuals/warranty.

Checklist for Inclusion in the Bid Package

- General Information Form (Appendix A)
- Detailed equipment specifications/drawings including all Warranty information

- List of references – all contracts from the last two (2) years of similar equipment and no less than five (5) total references with current contact information.

- Signed Bid Price Form & Signature Page (Appendix B)
- Signed Tax Compliance and Non-Collusion Statements (Appendix C)
- Taxpayer Identification Number (TIN) (Appendix D)
- Letter from auditing firm or other acceptable entity attesting to Financial Stability

- Completed Bid Specification Form (Compliance Yes/No with exceptions enumerated per the numbered bid specification list separately) (Appendix E)

- Location of Service facility identified within 150 miles of Ashfield.
- 1 original and 1 copy as well as 1 USB/Flash Drive of bid package required
- Bids will be received at Ashfield Town Hall, 412 Main Street, Ashfield, MA 01330 by the Town Administrator/Chief Procurement Officer.

Appendix B

BID PRICE FORM – Page 1

Total Delivered Price for Fire Truck per the Specifications.

All components or supplies not expressly mentioned but required for proper use of the equipment are included in this bid price and the vendor shall deliver as though they were specifically mentioned, described and delineated.

\$ _____

In Written Words: _____

WERE ANY EXCEPTIONS TO THE SPECIFICATIONS TAKEN? Yes ___ No ___

If “Yes”, you must submit a detailed description of all deviations referring to each line number in the bid document.

DELIVERY TIME: _____

Delivery time shall be stated in calendar days from the Notice to Proceed. More than 300 days may be reason to disqualify the bid. After 300 days, penalties apply.

SERVICE LOCATION:

Address

Phone Number

DISTANCE FROM SERVICE FACILITY TO ASHFIELD, MA: _____ MILES

If any ADDENDA are issued, please sign below that you have received them:

I have received ADDENDA #1 _____

I have received ADDENDA #2 _____

I have received ADDENDA #3 _____

BID PRICE FORM – Page 2

Authorized Bid Signature

Name of Company

Telephone number

Name and Title of Individual Authorized to Sign

Email Address

Signature

Date

Signature for Partnerships (must be signed by ALL general partners)

Name of Partnership

Date

Name and Title of Partner

Signature

Name and Title of Partner

Signature

Telephone Number of Company Offices (Use additional sheets if necessary)

Email Address

Signatures for Corporation

Name of Corporation

Date

Printed Name and Title of Duly Authorized Company Officer

Signature

Telephone Number

Email Address

Incorporation State: _____

President: _____

Treasurer: _____

Secretary: _____

**If a sole proprietorship, you must indicate your status as a sole proprietorship; the person signing this bid shall be deemed to be the sole proprietor and legal entity for the purposed of this bid and contract.*

Corporate Seal (affix below)

Appendix C

TAX COMPLIANCE

Any person failing to sign the Tax Compliance and Non Collusion Statements shall not be allowed to obtain, renew, or extend a license, permit, or public contract.

Pursuant to M.G.L. Chapter 62C, §49A, I hereby certify, under the penalties of perjury, that, to the best of my knowledge and belief, I am in compliance with all the laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature of Individual Submitting Bid

Printed Name of Individual Submitting Bid

Name of Company

Date

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature of Individual Submitting Bid

Printed Name of Individual Submitting Bid

Name of Company

Date

Appendix D

Taxpayer Identification Number (TIN) and Certification

Name (as shown on your income tax return)

Business Name, If Different From Above

- Check appropriate box:
- Individual/Sole Proprietor
 - Corporation
 - Limited Liability Corporation (LLC)
Circle tax classification: D (disregarded entity)
C (corporation)
P (partnership)
 - Partnership
 - Other: _____

Street Address City State ZIP

Taxpayer Identification Number (TIN)

Enter your TIN on the appropriate line below. The TIN provided must match the name given on Line 1 to avoid backup withholding. However, for a resident alien, sole proprietor, or disregarded entity, see the IRS instructions on filling out Form W-9. For other entities, it is your employer identification number (EIN). For individuals, this is your social security number (SSN)- do not include on this public form and contact the Town if you do not have an EIN.

EIN: _____

Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because:
 - a) I am exempt from backup withholding, or
 - b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or
 - c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. person (including a U.S. resident alien).

Certification Instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return.

Signature of US Person

Date

Appendix E – Bid Specs

Bidder Comply:	
YES	NO

SCOPE AND GENERAL REQUIREMENTS

It is the intent of the bidder to provide a new fire apparatus that will withstand the continuous use encountered in the emergency firefighting service. The apparatus shall be of the latest type, symmetrically proportioned and constructed with due consideration of the load to be sustained.

All parts not specifically mentioned herein, but which are necessary in order to furnish a complete fire apparatus, shall be furnished and shall conform to the best practices known to the fire apparatus industry.

The unit is to be of current year manufacture and is to be new and unused. The bid price shall not include any local, State, or Federal taxes. Bidder shall not be liable for any State or Federally mandated tax or program after the sale of this apparatus.

These specifications shall be construed as minimum. Should the manufacturer's current published data or specifications exceed these, they shall be considered minimum and be furnished.

MANUFACTURER'S BACKGROUND

Bids are requested from responsible manufacturers who are engaged in the manufacture of fire apparatus. To insure reliable and complete acceptance of the apparatus, bidder shall have been in operation for a minimum of thirty (30) years in the manufacturing of fire apparatus.

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.

If the manufacturer of the apparatus, or if any owner, shareholder, or immediate relative of an owner or shareholder that has previously been involved in or held ownership in any company that has filed bankruptcy or any other type of reorganization plan, it must be clearly stated in the bid proposal. The statement must include details and dates of all occurrences.

FAMA COMPLIANCE

Bidder must be a current member of the Fire Apparatus Manufacturer's Association (FAMA) and must provide certificate of membership.

Bidder Comply:	
YES	NO

FAIR, ETHICAL AND LEGAL COMPETITION

In order to ensure fair, ethical, and legal competition the apparatus manufacturer shall have never been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

PROPRIETARY PARTS

It is the intention of Ashfield Fire Department for all bidders to furnish the apparatus with major parts commonly used by the heavy-duty truck manufacturers and open market vendors whereas replacement parts are more readily available and at reduced cost. The use of proprietary parts may not be acceptable to Ashfield Fire Department.

MANUFACTURER'S DISCRETION

Materials, parts, or procedures used are subject to change at manufacturer's discretion at any time to provide equal or better products.

PRODUCT QUALITY AND WORKMANSHIP

The components provided and workmanship performed shall be of the highest quality available for this application. Special consideration shall be given to the following areas:

- A). Accessibility to various components that require periodic maintenance or lubrication checks.
- B). Ease of vehicle and pump operation.
- C). Features beneficial to the intended operation of the apparatus.

Construction of the complete apparatus shall be designed to carry the loads intended to meet the road and terrain conditions and speed requirements desired when specified by Ashfield Fire Department.

Welding shall not be employed in the assembly of the apparatus in a manner that will prevent the removal of any major component part for service and/or repair.

INSURANCE REQUIREMENTS

Bidder must submit with their bid proposal a Certificate of Insurance listing the proposed manufacturer's product liability insurance coverage. Liability insurance shall be a minimum amount of ten (10) million dollars. Submitted certificate shall name the apparatus manufacturer, insurance company, policy number, and effective dates of the insurance policy. Bids submitted without the required certificate will be considered nonresponsive and automatically rejected. No exceptions are allowed to the minimum insurance coverage requirement.

The manufacturer shall maintain full insurance coverage on Ashfield Fire Department's cab and chassis from time of first possession by the manufacturer until the apparatus is delivered and accepted by Ashfield Fire Department. Ashfield Fire Department reserves the right to require

Bidder Comply:	
YES	NO

proof of insurance from the manufacturer's insurance carrier prior to entering into a contract for the apparatus.

PAYMENT TERMS

Full payment for the apparatus shall be made at time of delivery of the completed vehicle. Due to insurance liability, the apparatus will not be left at Ashfield Fire Department 's location without full acceptance and payment or prior agreement between Ashfield Fire Department and Bidder.

Final delivery price shall not include any Local, State or Federal taxes. The manufacturer shall not be liable for any State or Federal mandated tax or program after sale or delivery of the apparatus.

DELIVERY REQUIREMENTS

Delivery of the completed vehicle shall be no more than 300 calendar days after the execution of a contract.

INSPECTION TRIPS

The successful bidder shall provide two (2) inspection trips to the apparatus manufacturers facility. Transportation, meals, lodging, and other requisite shall be the bidders responsibility.

The trips shall include one (1) prior to equipment mounting and (1) for final completion.

AIR TRANSPORTATION (GREATER THAN 500 MILES)

Travel arrangements greater than 500 miles from the manufacturing facility shall be via commercial airline transportation.

The {Company} maintains the right to inspect the apparatus, within normal business hours, at any other point during construction.

Expenses incurred during non-specified inspection visits shall be the responsibility of the {Company}.

During inspection visits, the {Company} reserves the right to conduct actual performance tests to evaluate completed portions of the unit.

Testing shall be accomplished with the assistance and resources of the contractor.

FUEL TANK FILLED AT DELIVERY

The fuel tank and DEF tank shall be filled upon final delivery at the factory.

Bidder Comply:	
YES	NO

OVERALL HEIGHT

The overall height of the apparatus shall not exceed **9 feet 6 inches**.

OVERALL LENGTH

The overall length of the apparatus shall not exceed **30 feet**.

OVERALL WIDTH

The overall width of the apparatus shall not exceed **9 feet 4 inches**.

NFPA 1901 COMPLIANCE

The National Fire Protection Association standard #1901 (most recent edition) is hereby adopted and made a part of these specifications, the same as if they were written out in full detail, insofar as they apply with the exception of any sections dealing with “Equipment Recommended for Various Types of Apparatus”. Bidders are to provide only the equipment requested herein and the Department will supply the rest before the apparatus is put into service. The unit shall comply with all federal, state, ICC, and DOT motor vehicle regulations, standards, and laws relating to commercial vehicles as well as to fire apparatus on the date of the bid.

ROAD TEST CERTIFICATION

A road test shall be conducted with the finished apparatus fully loaded. During this time, the apparatus shall not show loss of power and/or overheating. The transmission driveshaft or shafts and rear axle shall run free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall have not less than 25% or more than 45% of the weight on the front axle and not less than 55% or more than 75% on the rear axle.

- A). The apparatus must be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- B). The apparatus must be capable of accelerating from a steady speed of 15 mph to a true speed of 35 mph within 30 seconds. This shall be accomplished without moving the gear selector.
- C). The fully loaded apparatus shall be capable of obtaining a speed of 50 to 55 mph on a level concrete highway.
- D). The manufacturer shall furnish copies of the engine installation approvals signed by the appropriate engine company upon delivery of the chassis to Ashfield Fire Department.
- E). The manufacturer shall furnish copies of the transmission approval signed by the transmission manufacturer upon delivery of the chassis to Ashfield Fire Department.

Bidder Comply:	
YES	NO

F). The manufacturer shall furnish copies of the front and rear axle approvals upon delivery of the apparatus to Ashfield Fire Department.

ROAD TEST FAILURE

In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the manufacturer within thirty (30) days of the first trials. Such trials shall be final and conclusive and failure to comply with changes, as Ashfield Fire Department may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the manufacturer of such changes, shall be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by Ashfield Fire Department, or its use by Ashfield Fire Department during the above-specified period with permission of the manufacturer, shall not constitute acceptance.

VEHICLE TOP SPEED

The rear axle shall be geared for a top speed of 65 to 68 mph at engine governed RPM.

NFPA TOP SPEED STATEMENT

NFPA-1901, 2009 Edition - 4.15.2. The maximum top speed of fire apparatus with a GVWR over 26,000 lbs. shall not exceed either 68 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

NFPA-1901, 2009 Edition - 4.15.3. If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gallons, or the GVWR of the vehicle is over 50,000 lbs., the maximum top speed of the apparatus shall not exceed either 60 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

SAFETY SIGNS

The following safety signs shall be provided:

SEATED AND BELTED WARNING LABEL

A permanent label shall be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label shall also state potential injuries or death that could be caused if the safety belts are not used properly.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL

A permanent label shall be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label shall state that all equipment shall be properly secured and also warn of potential injury or death that could be caused by failing to do so.

Bidder Comply:	
YES	NO

DO NOT WEAR HELMET LABEL

A permanent label shall be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label shall also warn of potential injury or death that could be caused by wearing helmet in cab.

VEHICLE BACKING LABEL

A permanent label shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

- “Do Not Move Apparatus When Light Is On” sign adjacent to the warning light indicating a hazard if the apparatus is moved (as described in subsequent section).

CHASSIS DATA LABELS

The following information shall be on labels affixed to the vehicle:

Fluid Data:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid (if applicable)
- Drive axle lubrication fluid
- Air conditioning refrigerant
- Air conditioning lubrication
- Power steering fluid
- Cab tilt mechanism fluid (if applicable)
- Transfer case fluid
- Equipment rack fluid (if applicable)
- Air compressor system lubricant
- Generator system lubricant (if applicable)

Chassis Data:

- Chassis Manufacturer
- Production Number
- Year Built
- Month Manufactured
- Vehicle Identification Number

Location shall be in the driver's compartment of the chassis cab.

Bidder Comply:	
YES	NO

OVERALL HEIGHT, LENGTH, GVW DATA PLATE

A "high visibility" plate shall be permanently mounted in the cab, visible to driver when seated.

The plate shall show the overall height of the completed apparatus in feet and inches, the overall length of the completed apparatus in feet and inches.

The plate shall also show the gross vehicle weight rating (GVWR) in tons.

Text shall also be supplied on the plate, indicating that the information shown is current upon completion of the apparatus. If the overall height of the apparatus changes after the apparatus is put into service, then Ashfield Fire Department must revise the dimensions on the plate.

"NO RIDE" LABEL

A label shall be located on the vehicle at the rear step areas, and at any cross walkways, if they exist. The label(s) shall warn personnel that riding in or on these areas while the vehicle is in motion is prohibited.

CHASSIS PROVIDER

The chassis, as detailed in these specifications, shall be ordered and supplied by the apparatus manufacturer.

MODEL YEAR

The apparatus shall have a vehicle identification number that reflects a 2023 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer or their OEM needed to be in compliance with those regulations.

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English.

Bidder Comply:	
YES	NO

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min).

The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The apparatus shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.

NFPA1901 Angle of Approach definition:

“To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance *V*). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance *H*). Divide the vertical distance by the horizontal distance. The ratio of *V/H* is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if *V* divided by *H* is 0.1405 or larger, the angle of approach is 8.00 degrees or greater.”

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

FRONT GROSS AXLE WEIGHT RATING

The front gross axle weight rating (GAWR) of the chassis shall be 18,000 pounds.

Bidder Comply:	
YES	NO

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

REAR GROSS AXLE WEIGHT RATING

The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver’s parking brake control valve shall function normally.

WATER CAPACITY

The apparatus shall include a carrying capacity of 1,000 gallons. The water tank shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a custom, fully enclosed, MFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

Bidder Comply:

YES NO

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19-inch-thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls, and lower roof skin shall be 0.13-inch-thick; the rear wall and raised roof skins shall be 0.09-inch-thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 131.10 inches with 54.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 51.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

Bidder Comply:

YES NO

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch-thick plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the “Classic” design.

The front cab fascia shall include two (2) modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. Two (2) chrome plated bezels shall be provided on each side around each set of two lamps.

FRONT GRILLE

The front fascia shall include a 304 stainless steel front grille.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB EXTERIOR PAINT

The cab exterior shall be painted a single color per Ashfield Fire Department’s specified paint color. As an option, the cab may be painted to match the Department's existing paint scheme.

CAB PAINT PROCESS

The cab shall be painted with Sikkens paint prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the cab shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.

The entire cab shall then be coated with a high-quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the cab to

Bidder Comply:	
YES	NO

a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.

The cab shall then be painted the specific color(s) designated by Ashfield Fire Department with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.00 mils with a maximum of 4 mils, followed by a clear topcoat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab shall then be baked to speed the curing process of the coatings.

CAB PAINT PRIMARY / LOWER COLOR

The lower paint color shall be Sikkens FLNA 32557 Red.

CAB PAINT WARRANTY

Ashfield Fire Department shall receive a Paint and Finish (Exterior Clear coated) one (1) year limited warranty in accordance with, and subject to, warranty certificate RFW0701. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a multi-tone silver gray texture finish.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13-inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38-inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door

Bidder Comply:

YES NO

so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

CAB INSULATION

The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

CAB STRUCTURAL WARRANTY

Ashfield Fire Department shall receive a Cab Structure (Aluminum) five (5) years limited warranty in accordance with, and subject to, warranty certificate RFW0601. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12-volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311-degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275-degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

Bidder Comply:	
YES	NO

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud. A 225-amp battery direct power and ground stud shall be provided and installed on the chassis near the left-hand battery box for OEM body connections.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

Bidder Comply:	
YES	NO

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with a high-idle speed rocker switch and an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the engine is running, and the transmission is in neutral with the parking brake set. When automatically engaged the high idle shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

The engine shall utilize a variable geometry turbo (VGT). The VGT auxiliary engine brake shall be an integral part of the turbo and shall offer a variable rate of exhaust flow, which when activated shall slow the engine and in turn slow the vehicle.

The VGT shall actuate the vehicle’s brake lights when engaged as an auxiliary brake. A cutout relay shall be installed to disable the VGT when in pump mode or when an ABS event occurs. The VGT engine brake shall activate at a 0% accelerator throttle position when in operation mode.

AUXILIARY ENGINE BRAKE CONTROL

An engine variable geometry turbo brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The variable geometry turbo brake control shall be controlled through an on/off rocker switch.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

Bidder Comply:

YES NO

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements.

The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores. The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward

Bidder Comply:	
YES	NO

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overflow rather than allow the fluid to drain on the ground.

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, and downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the DPF and SCR.

The system shall utilize 0.07-inch-thick stainless-steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The single module after treatment through the end of the tailpipe shall relate to zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires. The exhaust system after treatment module shall be mounted below the frame in the outboard position.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross-linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left-hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

Bidder Comply:	
YES	NO

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

The exhaust flex joint shall not include the thermal exhaust wrap.

EMISSIONS SYSTEMS WARRANTY

Ashfield Fire Department shall receive a Regulated Emissions Systems five (5) years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

- 1st 3.49:1
- 2nd 1.86:1
- 3rd 1.41:1
- 4th 1.00:1
- 5th 0.75:1
- Rev 5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

Bidder Comply:	
YES	NO

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V/VI-E transmission EVS group package number 127 shall contain the 198 vocational packages in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V/VI-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

- Function ID Description Wire assignment
- Inputs
- C PTO Request 142
- J Fire Truck Pump Mode (4th Lockup) 122 / 123
- Outputs
- C Range Indicator 145 (4th)
- G PTO Enable Output 130
- Signal Return 103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

Bidder Comply:	
YES	NO

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.

The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00-inch NPT fill ports for right- or left-hand fill. A 0.50-inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12-gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The crosshatch adhesion test per ASTM D3359 Method B, results to be 5B minimum.

The pencil hardness test per ASTM D3363 shall have a final post-cured pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

Bidder Comply:	
YES	NO

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

FUEL TANK DRAIN PLUG

A 0.5-inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-18. The axle shall include a 3.74-inch drop and a 71.00-inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 18,000 pounds.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintaining consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers. Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

FRONT SUSPENSION

The front suspension shall include a four (4) leaf spring pack consisting of 54.00-inch-long and 4.00-inch-wide taper leaf springs and shall feature a military double wrapped front eye. Both spring eyes shall have a case-hardened threaded bushing installed with lubrication counter bore

Bidder Comply:	
YES	NO

and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 18,000 pounds.

STEERING COLUMN / WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25-inch telescopic adjustment, and an 18.00 inch, two (2) spoke steering wheel located at the driver’s position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type. The power steering system shall include an oil to air passive cooler.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 50-degrees to the left and right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to ensure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

Bidder Comply:

YES NO

The Michelin Intermittent Service Rating maximum load capacity shall be 20,052 pounds per axle with a maximum speed of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 18,740 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all-weather tread. The rear tire stamped load capacity shall be 27,120 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 29,020 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall match the nominal speed rating.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR AXLE RATIO

The rear axle ratio shall be 5.13:1.

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

FRONT WHEELS

The front wheels shall be Alcoa hub piloted, 22.50-inch X 12.25-inch aluminum wheels featuring a mirror polish on the outer face. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

REAR WHEELS

The outer rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00-inch aluminum wheels with a mirror polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00-inch aluminum wheels with bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a controlled service brake application during an unlikely event including primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00-inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor 16.50-inch X 8.63-inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

Bidder Comply:	
YES	NO

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake. The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

REAR BRAKE DUST SHIELDS

The rear brakes shall be equipped with brake dust shields.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100-watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right-hand frame rail forward of the front wheel behind the right-hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

Bidder Comply:	
YES	NO

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket.

MOISTURE EJECTORS

Manual pet-cock type drain valves shall be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Push to connect type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

WHEELBASE

The chassis wheelbase shall be 178.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 56.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100-inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" shall not be considered. Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25-inch-thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member.

Bidder Comply:	
YES	NO

The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25-inch-thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00-inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The crosshatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FRAME ASSEMBLY

Ashfield Fire Department shall receive a Frame Assembly Structural Five (5) Years limited warranty in accordance with, and subject to, warranty certificate RFW0301. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRAME RAIL CORROSION

Ashfield Fire Department shall receive a Frame Rail Corrosion (Powder Coat) three (3) years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0311. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRAME COMPONENTS CORROSION

Ashfield Fire Department shall receive a Frame Components Corrosion (Powder Coat) one (1) year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless-steel front bumper shall be provided. The material shall be 10-gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 6.00 inches ahead of the cab.

FRONT BUMPER APRON

The 6.00 inch extended front bumper shall include an apron constructed of 0.19-inch-thick embossed aluminum tread plate. The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

AIR HORN

The front bumper shall include two (2) Hadley brand E-Tone air horns which shall measure 21.00 inches long with a 6.00-inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed below the front bumper in the forward position, bolted directly to the underside of each chassis frame rail with grade 8 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

Bidder Comply:

YES NO

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90-inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right-side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right-hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote-control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote-control pendant shall be shipped loose with the chassis.

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Bidder Comply:	
YES	NO

Each windshield shall be installed using black self-locking window rubber.

FRONT DOOR GLASS

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

OFFICER SIDE REAR DOOR GLASS

The rear right hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

OFFICER SIDE REAR DOOR GLASS TINT

The window located in the right-hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

DRIVER SIDE REAR DOOR GLASS

The rear left-hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

DRIVER SIDE REAR DOOR GLASS TINT

The window located in the left-hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

Bidder Comply:

YES NO

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating and defrosting controls shall be located on the front overhead climate control unit. There shall be additional heating and air conditioning controls located on the engine tunnel mounted climate control unit.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32,000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.30-inch-thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive.

INTERIOR FLOOR TRIM

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25-inch-thick sound absorbing closed cell foam with a 0.06-inch-thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim

Bidder Comply:	
YES	NO

CENTER PANEL SWITCHES

The center dash panel shall include twelve (12) rocker switch positions in a single row across the top of the panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

LEFT PANEL SWITCHES

The left dash panel shall include eight (8) switches. There shall be six (6) switches across the top of the panel and two (2) staggered on the left-hand portion of the panel. Five (5) of the top row of switches shall be rocker type and the left one (1) shall be the headlight switch. The remaining switches shall consist of one (1) windshield wiper/washer control switch and one (1) instrument lamp dimmer switch.

A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

RIGHT DASH PANEL SWITCHES

The right dash panel shall include no rocker switches or legends.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall activate a digital seat position indicator with a seat position legend and integrated audible alarm in the switch panel.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds and the corresponding seat belt remains unfastened. The warning system shall also activate when any seat is occupied, and the corresponding seat belt was fastened in an incorrect sequence. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The USSC Valor seats shall include military grade high strength, wear resistant fabric made of durable ballistic polyester. A synthetic coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. The fabric shall include the integration VALORTech XD®, a proprietary antimicrobial agent, designed to resist toxicity and contaminants.

Bidder Comply:

YES NO

If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back shall include the manufacturer's logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be a USSC Valor P1A air suspension. The four-way seat shall feature a 3.00 inches vertical travel air suspension and manual fore and aft adjustment with 6.00 inches of travel. The suspension control shall be located on the seat below the front of the cushion. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

DRIVER SEAT BACK

The driver's seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

DRIVER SEAT MOUNTING

The driver's seat shall be installed in an ergonomic position in relation to the cab dash.

Bidder Comply:	
YES	NO

OFFICER SEAT

The officer’s seat shall be a USSC Valor slide adjustment seat. The seat shall feature a tapered and padded seat, and cushion. The two-way, manually adjustable tracks shall include 9.40 inches of fore and aft travel.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly.

The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations.

In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

OFFICER SEAT BACK

The officer seat back shall include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical walk away bracket shall meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket shall secure a self-contained breathing apparatus with most sizes of cylinders. The bracket shall feature a top clamp and a footplate which securely lock the SCBA. The top clamp shall be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate shall be powder coated.

The bracket shall also include a pull release cable with a handle which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The handle shall be located on the front of the seat in the center.

Bidder Comply:

YES NO

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

OFFICER SEAT MOUNTING

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip. The seat belts shall include Ready Reach belt extenders to present belt over shoulder.

REAR FACING OUTER SEAT LOCATION

The crew area shall include one (1) rear facing crew seat, which include one (1) located directly behind the right-side front seat.

REAR FACING OUTBOARD SEATING

The crew area shall include a seat in the rear facing outboard position which shall be a USSC Valor ABTS Crew series. The seat shall feature an 18.00 inches wide padded seat cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

REAR FACING OUTBOARD SEAT BACK

The rear facing outer seat back shall include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical walk away bracket shall meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

Bidder Comply:

YES	NO

The bracket shall secure a self-contained breathing apparatus with most sizes of cylinders. The bracket shall feature a top clamp and a footplate which securely lock the SCBA. The top clamp shall be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate shall be powder coated. The bracket shall also include a pull release cable with a handle which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The handle shall be located on the front of the seat in the center.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

REAR FACING OUTBOARD SEAT MOUNTING

The rear facing outer seat shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.

FORWARD FACING CENTER SEAT LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

FORWARD FACING CENTER SEATS

The crew area shall include a seat in the forward-facing center position which shall be a USSC Valor ABTS Crew series. The seat shall feature an 18.00 inches wide padded seat cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly.

The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

Bidder Comply:

YES NO

FORWARD FACING CENTER SEAT BACK

The forward-facing center seat backs shall include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical walk away bracket shall meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket shall secure a self-contained breathing apparatus with most sizes of cylinders. The bracket shall feature a top clamp and a footplate which securely lock the SCBA. The top clamp shall be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate shall be powder coated. The bracket shall also include a pull release cable with a handle which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The handle shall be located on the front of the seat in the center.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

FORWARD FACING CENTER SEAT FRAME

The forward-facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19-inch-thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.

FORWARD FACING CENTER SEAT STORAGE ACCESS

There shall be two (2) access points on the side of the storage area, one (1) on the driver side and one (1) on the officer side.

FORWARD FACING CENTER SEAT MOUNTING

The forward-facing center seats shall be installed facing the front of the cab.

TREADPLATE CAB EMS COMPARTMENT

A storage compartment shall be mounted in the cab in lieu of the driver's side, rearward facing, crew seat.

The compartment shall be approximately 24" deep x 46 " high x 24" wide.

The door opening shall be approximately 40" high x 21" wide.

The compartment shall be constructed of tread plate and shall be equipped with seat belt webbing with buckles.

Bidder Comply:	
YES	NO

ADJUSTABLE SHELVES

There shall be three (3) adjustable shelves provided in the EMS compartment. The shelf shall be constructed from 3/16” brush aluminum mounted to uni-strut tracking material.

CAB EMS COMPARTMENT LIGHTING

The EMS compartment shall be equipped with one (1) Amdor, LED interior light. The lighting shall be activated by a switch.

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver’s position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow “Check Message Center” indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a “Check Washer Fluid Level” message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish. The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

GRAB HANDLES

The cab shall include one (1) 18.00-inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25-inch diameter to enable non-slip assistance with a gloved hand.

Bidder Comply:	
YES	NO

REARVIEW MIRRORS

Retrac West Coast style single vision mirror heads model 1171H shall be provided and installed on each of the front cab doors. The mirrors shall be mounted to the cab doors with tubular stainless-steel swing away arms and the mirror heads shall be center mounted on the arms to provide rigid mounting to reduce vibration.

The flat mirrors shall measure 7.00 inches wide x 16.00 inches high. A separate lower 8.00 inch round manually adjustable convex mirror model 980-4 shall be provided below the flat mirror for a wider field of vision. The mirror glass shall be held in a plastic housing with a stainless-steel back. The mirrors shall be manufactured with the finest quality non-glare glass.

The flat mirrors shall be remotely adjustable vertically and horizontally via four-way actuation switches. The control switches shall be mounted in the cab within easy reach of the driver. The flat mirrors shall be heated for defrosting in cold weather conditions.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a rocker switch on the dash in the switch panel.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of rubber.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include the manufacturer’s emblem. One (1) shall be installed on the front air intake grille.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.

The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.

Bidder Comply:

YES NO

BATTERY

The single start electrical system shall include three (3) Harris BCI 31 925 CCA batteries with a 210-minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries shall be installed on a steel battery tray located on the left side of the chassis, securely bolted to the frame rails. The battery tray shall be coated with the same material as the frame.

The battery tray shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the tray to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

The battery box shall include a steel cover which protects the top of the batteries on the left hand side of the vehicle. The cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275-degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

The battery terminals shall not be utilized for auxiliary connections. The only acceptable auxiliary connections shall be for the cross over link from the left bank to the right bank, power for jumper studs and starter cables.

All other auxiliary connections will use remote studs mounted in the battery box area. There shall be four (4) remote studs labeled as Common Power, Common Ground, Clean Power, and Clean Ground.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located on the rear face of the left-hand battery tray. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 320-amp Leece-Neville 12-volt alternator. The alternator shall include a self-exciting integral regulator.

Bidder Comply:	
YES	NO

INTERIOR OVERHEAD LIGHTS ACTIVATION

The clear portion of each lamp shall be activated by opening the respective door.

GROUND LIGHTS

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

GROUND LIGHTS

The ground lighting shall be activated when the parking brake is set.

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a Tecniq T44 LED light which shall activate with the opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at the front doors shall include a TecNiq D06 LED light within a chrome housing. The front egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with entry step lighting.

ENGINE COMPARTMENT LIGHT

There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red TecNiq K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled "Master" for identification. The switch shall feature control over all devices wired through it.

Any warning device switch left in the "ON" position shall automatically power up when the master switch is activated.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied.

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a rocker switch on the switch panel. The rocker switch shall be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red.

FRONT WARNING SWITCH

The front warning lights shall be controlled via rocker switch on the panel. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side.

The lights shall feature multiple flash patterns including steady burn.

Bidder Comply:

YES	NO

be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty-eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

The instrument panel shall contain the following gauges:

One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at 1/8th tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures.

A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.

The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS

Stop Engine - indicates critical engine fault

Air Filter Restricted - indicates excessive engine air intake restriction

Bidder Comply:	
YES	NO

- Park Brake - indicates parking brake is set
- Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened
- Low Coolant - indicates critically low engine coolant
- Cab Tilt Lock - indicates the cab tilt system locks are not engaged.

AMBER INDICATORS

- Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault
- Check Engine - indicates engine fault
- Check Transmission - indicates transmission fault
- Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
- High exhaust system temperature – indicates elevated exhaust temperatures
- Water in Fuel - indicates presence of water in fuel filter
- Wait to Start - indicates active engine air preheat cycle
- Windshield Washer Fluid – indicates washer fluid is low
- DPF restriction - indicates a restriction of the diesel particulate filter
- Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
- Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.
- SRS - indicates a problem in the supplemental restraint system
- Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.

GREEN INDICATORS

- Left and Right turn signal indicators
- ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
- High Idle - indicates engine high idle is active.
- Cruise Control - indicates cruise control is enabled
- OK to Pump - indicates the pump is engaged and conditions have been met for pump operations
- Pump Engaged - indicates the pump transmission is currently in pump gear
- Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS

- High Beam indicator

AUDIBLE ALARMS

- Air Filter Restriction
- Cab Tilt Lock
- Check Engine
- Check Transmission
- Open Door/Compartment
- High Coolant Temperature

Bidder Comply:	
YES	NO

WARRANTY

Ashfield Fire Department shall receive a Custom Chassis one (1) year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0101. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:

- (1) Hard copy of the Engine Operation and Maintenance manual with digital copy
- (1) Digital copy of the Transmission Operator’s manual
- (1) Digital copy of the Engine Owner’s manual

CAB / CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

PAINT CONFIRMATION

There shall be a paint confirmation letter sent to the body manufacturer with paint spray outs to confirm the cab primary paint color or primary and secondary paint color as specified by the paint options.

FRONT HUB COVERS

Stainless steel hub covers shall be provided on the front axle.

REAR HUB COVERS

A pair of stainless-steel high-hat hub covers shall be provided on rear axle hubs.

CHROME LUG NUT COVERS

Chrome lug nut covers shall be supplied on front and rear wheels.

Bidder Comply:

YES NO

HOT EXHAUST DANGERS LABEL

A permanent label shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

FRONT MUD FLAPS

A pair of black rubber mud flaps shall be provided as detailed in the chassis specifications.

REAR MUD FLAPS

A pair of black rubber mud flaps, with the Manufacturer's logo, shall be provided and installed behind the rear wheels.

KEYLESS IGNITION SWITCH

One (1) non-removable, keyless style ignition switch shall be provided with the chassis.

BATTERY CONDITIONER

A Kussmaul Chief 6012 Series battery conditioner shall be supplied. The battery conditioner shall provide a 60-amp output for the chassis batteries and a 20-amp output circuit for accessory loads.

BATTERY CHARGER LOCATION

The battery charger shall be located in a pre-determined location by the manufacturer.

120 VOLT SHORELINE CONNECTION

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120-volt, 20-amp shoreline disconnect shall be provided for the on board, 120-volt battery charging systems.

AUTO-EJECT MATING PLUG

A Kussmaul model # 5-20P-H, 20 amp mating female cord end shall be shipped loose with the apparatus to allow the Fire Department to connect cord end to a Fire Department provided charging cord.

BATTERY CHARGER DISPLAY / COVER

One (1) Kussmaul model 091-55-266-YW battery charger status center/ auto eject cover shall be supplied with the charger.

The cover shall be yellow in color.

Bidder Comply:	
YES	NO

SHORELINE RECEPTACLE LOCATION

The shoreline receptacle shall be located on the left-hand side of the apparatus in a pre-determined location by the manufacturer.

AUXILIARY AIR COMPRESSOR

A Kussmaul 12V air compressor shall be supplied. The compressor system shall be designed to maintain the air pressure in the air system while not in use. A pressure switch shall sense air pressure drop and engage the compressor which shall run until the pressure is restored.

AUXILIARY AIR COMPRESSOR LOCATION

The auxiliary air compressor shall be located in a pre-determined location by the manufacturer.

BACK-UP ALARM

One (1) back up alarm shall be provided as detailed in the chassis specifications.

INVERTER

There shall be an inverter installed on the apparatus with outlet receptacles located in R1, R2, R3, L3 compartments and inside cab.

There shall also be power supply within the cab to be able to charge batteries, flashlights, radios.

NFPA 1901 COMPLIANT PUMP

The fire pump and related plumbing on the specified apparatus shall be installed in accordance with applicable NFPA 1901 guidelines at the time the contract was placed.

HALE QMAX PUMP ASSEMBLY

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis.

The entire pump shall be assembled and tested at the pump manufacturer's factory.

The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.

750 GPM (2839 L/M) @ 250 psi (17.2 bar)

Bidder Comply:	
YES	NO

LEFT SIDE INLET

One (1) 6.00" steamer inlet with male NST threads shall be provided on the left side of the pump module. The inlet shall have a removable screen.

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NST threads shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

RIGHT SIDE INLET

One (1) 6.00" steamer inlet with male NST threads shall be provided on the right side of the pump module. The inlet shall have a removable screen.

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NST threads shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

PUMP SHIFT CONTROLS

The pump shift controls shall be supplied with the custom chassis.

PIPING AND MANIFOLDS

All the plumbing and/or piping in the pump module shall be of 304 stainless steel or flexible piping for long life. All stainless-steel castings shall be a minimum of schedule 40. All NPT pipe thread connections larger than 0.75" connections shall be avoided in the construction of the plumbing system. The following valves shall have groove connection: rear discharge, tank fill, all 2.00" and 2.50" pre-connect valves.

The flexible piping shall be black SBR synthetic rubber hose with 300 working pounds and 1,200 pounds burst pressure for sizes 1.50" through 4.00". Sizes 0.75", 1.00" and 5.00" are rated at 250 lb. working and 1,000 lb. burst pressure. All sizes are rated at 30 HG vacuum. Reinforcement consists of two (2) plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00" through 5.00" for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees F to 210 degrees F. Full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. 0.75" and 1.00" male and Victaulic couplings are brass

Bidder Comply:	
YES	NO

The primer control shall have a manually operated, panel mounted “push to prime” air valve; which will direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.

THERMAL RELIEF VALVE

A Hale Model TRV120 Thermal Relief Valve shall be provided on the pump. If water temperature in the pump exceeds 120 degrees Fahrenheit, the thermal relief valve shall automatically open and discharge pump water to the ground, through a 0.375" discharge line, routed below the pump module. The thermal relief valve shall automatically close when the water temperature is lowered.

ANODES

The fire pump shall be equipped with replaceable alloy anodes. The pump shall have one (1) anode on each intake section and one (1) anode on the discharge section of the fire pump, for a total of three (3).

PRESSURE GOVERNOR & ENGINE MONITORING DISPLAY

Fire Research PumpBoss Max series PBA501-D00 pressure governor and control module kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 2" from the front of the control module. The control LCD shall be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus. Inputs from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown on LCD screen
- Check engine and stop engine warning; shown on LCD screen
- Engine oil pressure; shown on LCD screen
- Engine coolant temperature; shown on LCD screen
- Transmission Temperature; shown on LCD screen
- Battery voltage; shown on LCD screen
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on LCD screen
- Throttle ready / Ok to Pump LEDs.

On screen (LCD) message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED’s intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The pressure governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor control module shall be programmed at installation for a specific engine.

LEFT SIDE AUXILIARY INTAKE

One (1) 2.50" gated suction intake shall be installed on the left-hand side pump panel in the forward position to supply the fire pump from an external water supply. The intake shall have a 2.50" chrome plated female NST swivel connection with screen.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the left-hand side auxiliary suction.

The side auxiliary inlet will incorporate a quarter-turn ball valve with a swing-type manual control located adjacent the intake.

The intake shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

Bidder Comply:	
YES	NO

One (1) 2.50" chrome plated plug shall be provided. The plug shall be equipped with MNST threads, rocker lugs, and chain.

TANK TO PUMP LINE

One (1) 3.00" tank to pump line shall be provided for connection between the water tank and the fire pump. The quarter turn valve shall be manually operated with a Class1 locking push pull control rod.

TANK FILL / RECIRCULATION LINE

One (1) 2.00" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 2.00" piping and flex hose to tank. The quarter turn valve shall be manually operated with a Class1 locking push pull control rod.

DRIVER SIDE DISCHARGE #1

One (1) 2.50" discharge with valve shall be located on the left side panel. An Akron Brass 2.50" generation II swing-out valve shall be provided for the discharge.

The valve shall be manually operated with a swing handle from the left-hand side pump operator's panel.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

The discharge shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs shall be provided. The cap shall be equipped with FNST threads, rocker lugs, and chain.

DRIVER SIDE DISCHARGE #2

One (1) 2.50" discharge with valve shall be located on the left side panel. An Akron Brass 2.50" generation II swing-out valve shall be provided for the discharge.

The valve shall be manually operated with a swing handle from the left-hand side pump operator's panel.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

Bidder Comply:

YES	NO

The discharge shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs shall be provided. The cap shall be equipped with FNST threads, rocker lugs, and chain.

CROSSLAY #1

One (1) 1.75" crosslay pre-connect shall be installed in the pump module above the pump. The crosslay shall be plumbed using 2.00" stainless steel pipe, and/or flexible piping. A minimum of one (1) grooved pipe coupling shall be furnished in this assembly, if necessary, to allow for flex and serviceability.

The crosslay discharge shall terminate below the hose bed floor with a 1.50" NSTM chicksan swivel adapter.

The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

Crosslay discharge #1 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of **200 feet of 1.75" fire hose.**

An Akron Brass 2.00" generation II swing-out valve shall be provided for crosslay #1 discharge.

The quarter turn valve shall be manually operated with a Class 1 locking push pull control rod. It shall have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls shall be locked in any position.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

CROSSLAY #2

One (1) 1.75" crosslay pre-connect shall be installed in the pump module above the pump. The crosslay shall be plumbed using 2.00" stainless steel pipe, and/or flexible piping. A minimum of one (1) grooved pipe coupling shall be furnished in this assembly, if necessary, to allow for flex and serviceability.

The crosslay discharge shall terminate below the hose bed floor with a 1.50" NSTM chicksan swivel adapter.

Bidder Comply:	
YES	NO

The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

Crosslay discharge #2 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of **200 feet of 1.75" fire hose**.

An Akron Brass 2.00" generation II swing-out valve shall be provided for crosslay #2 discharge.

The quarter turn valve shall be manually operated with a Class 1 locking push pull control rod. It shall have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls shall be locked in any position.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

DUNNAGE AREA

A dunnage area shall be provided above the pump enclosure for equipment mounting and storage. This area shall be furnished with a removable 0.1875" aluminum floor and shall be enclosed on the sides.

NOTE: The size of this storage area may vary when top mounted crosslays, booster reel(s), etc., are specified and located in this area.

CROSSLAY DIVIDER

One (1) crosslay divider shall be provided, one (1) between the #1 and #2 crosslay.

The divider shall be constructed from 0.188" thick abraded aluminum plate and shall be mounted on a base T-extrusion that provides lower support the length of the divider.

ALUMINUM CROSSLAY COVER

A 0.1875" polished aluminum tread plate cross lay cover shall be provided with a full-length stainless-steel hinge at the rear of the cover.

CROSSLAY COMPARTMENT ENDS

The crosslay compartment shall be enclosed on each end using a heavy-duty vinyl flap to prevent hose from accidentally unloading. The cover shall be secured with a black shock cord/ hook system on the bottom and permanently secured on the top.

Bidder Comply:	
YES	NO

ALUMINUM PUMP MODULE CONSTRUCTION

The pump module shall be constructed entirely of extrusions and aluminum plate. The framework shall be formed from beveled aluminum alloy extrusions the pump module design must allow normal frame deflection through isolation mounts without imposing stress on the pump module structure or side running boards. The pump module shall consist of a welded framework, properly braced to withstand chassis frame flexing. The pump module support shall be bolted to the frame rails of the chassis.

INDEPENDENT PUMP MODULE

The pump module shall be fabricated as individual unit independent from the body.

PUMP MODULE WIDTH

Pump Module to be 42" side (side to side).

PUMP PANEL

The pump operator's control panel shall be located on the left-hand side of the apparatus. The pump enclosure side panels shall be completely removable and designed for easy access and servicing.

HINGED GAUGE PANEL

A full width, horizontally hinged gauge access panel shall be located on the left-hand side of the pump module above the main control panel. Two (2) black powder coated SouthCo. push type locks shall be provided along with lanyards.

PUMP ENCLOSURE ACCESS DOOR

A pump panel access door shall be provided on the upper right side of the side mount pump enclosure. The access door shall be approximately 24.00" high and as wide as possible. Three (3) black powder coated SouthCo. push type locks shall be provided along with lanyards.

The drains located on the right-hand side panel shall be fastened to the lower panel, which shall be stationary.

PUMP PANEL MATERIAL

The pump module panels shall be fabricated from 14-gauge 304L stainless steel with a brushed finish.

Bidder Comply:	
YES	NO

ISO CERTIFICATION

The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

FOAM TANK CONSTRUCTION

The booster and/or foam tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include PolyProSeal™ technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 0.375" PT3™ polypropylene.

All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength as part of the tank’s unique Full Floor Design™. Tolerances in design allow for a maximum variation of 0.125” on all dimensions.

The tank cover shall be constructed of 0.50" thick PT3 polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 0.375" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2.00" minimum polypropylene dowels spaced a maximum of 40.00” apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two (2) lifting dowels shall accommodate the necessary lifting hardware.

TANK OUTLETS

There will be two (2) standard tank outlets: one (1) for the tank-to-pump suction line, which shall be sized to provide adequate water flow to the pump; and one (1) for tank fill line, which shall be sized according to the NFPA minimum size chart for booster tanks. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 G.P.M. The addition of rear suction fittings, nurse valve fittings, dump valve fittings, and through-the-tank sleeves to accommodate rear discharge piping must be specified. All auxiliary outlets and inlets must meet all NFPA guidelines in effect at the time of manufacture.

Bidder Comply:	
YES	NO

CAPACITY CERTIFICATION

All water and foam tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank shall be weighed empty and full to provide precise fluid capacity. Each Poly-Tank® III is delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification.

CENTER OF GRAVITY

A center of gravity calculation shall be determined for each tank and provided as requested in order to provide the apparatus manufacturer with the necessary data to design and certify the apparatus with respect to the NFPA requirements regarding rollover stability. This information may be used by the apparatus manufacturer to assist in the calculation of the apparatus’s ability to meet the tilt table static rollover threshold or calculated Center of Gravity requirements per NFPA. A center of gravity and weight calculation for both empty and full conditions shall be required with each tank.

TANKNOLOGY™ TAG

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

WATER FILL TOWER AND COVER

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 0.50" PT3 polypropylene and shall be a minimum dimension of 12.00" x 12.00" outer perimeter. The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 0.25" thick removable polypropylene screen and a PT3 polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

FILL TOWER LOCATION

The fill tower shall be located in the left front area of the tank.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4.00" that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

SUMP

There shall be one (1) sump standard per tank. The sump shall be constructed of a minimum of 0.50" PT3 polypropylene and be located in the left front quarter of the tank, unless specified otherwise. On all tanks that require a front suction, a 3.00" schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3.00" N.P.T. threaded outlet on the bottom for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3.00" above the inside floor.

WATER TANK CLEAN-OUT PLUG

A 3.00" cleanout plug shall be provided in the bottom of the tank.

HOSE BED

The body shall have an intergraded upper hose bed. The floor of the hose bed shall be a removable welded assembly constructed of 6.00" wide aluminum hose bed slats and structural channel cross members. The hose bed shall be 74.00" wide x 158.00" long x 24.00" tall. Two (2) cross car Unistrut style channels shall be incorporated in the design for divider mounting.

HOSE BED BULKHEAD

A bulkhead divider shall be provided in the front area of the hose bed separating the hose bed from the tank fill tower(s). The balance of this area that is not occupied by fill tower or other mounted equipment shall be used as a dunnage compartment.

ALUMINUM HOSE BED DIVIDER

There shall be one (1) hosebed divider(s) provided the full fore-aft length of the hosebed. The hosebed divider(s) shall be constructed of 0.1875" smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider(s) shall have a radius corner to protect personnel. The divider(s) shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

HOSE BED COVER

A heavy duty 18 oz. vinyl hose bed cover shall be provided to protect the hose load from the weather. The cover shall extend from the front of the hosebed to the rear and then extend downward to cover the exposed rear of the bed and from the left side to the right side of the hosebed. The cover shall be secured utilizing a Velcro fastening system at the front and sides of the hosebed body.

The vinyl cover shall be **red** in color.

Bidder Comply:	
YES	NO

BODY DESIGN AND CONSTRUCTION

The body shall be modular in design, allowing it to be removed and remounted on a new chassis. The body shall be fabricated using aluminum extrusions, angle, smooth aluminum sheet and aluminum treadplate. The apparatus body shall have full height compartments on both sides.

FLOOR AND UNDERSTRUCTURE

The tank area floor shall be a single piece design made of 0.125" Aluminum Sheet. The floor shall be supported by front and rear extruded 6061 aluminum alloy 2.00" x 4.00" x 0.250" wall structural tube crossmembers and incorporating flange style direct body mounting plates. The center section of the floor shall be supported by two (2) additional crossmembers of 2.00" x 2.00" x 0.250" structural aluminum tube, interlocked with three (3) longitudinal 2.00" x 2.00" x 0.250" sections of structural aluminum tube, connecting the front most and rearmost crossmembers. The front of the body shall be closed in with a 0.125" aluminum bulkhead panels the same height as the body.

COMPARTMENT CONSTRUCTION

The compartments shall be completely formed of 0.125" 5052-H32 aluminum alloy. Removable access panels bolted to welded in place light guards, shall be provided on each side of the body at front and rear bulkheads for body lighting and wiring service.

COMPARTMENT VENTS

Each body side compartment shall be properly vented in a manner that will minimize the possibility of moisture and road dirt entering the compartment. Venting shall be to atmosphere for front and rear side compartments. The center wheel well compartments shall be vented to the front and rear compartments.

COMPARTMENT SHELF TRACKS

All side body compartments be furnished with adjustable shelving track installed. The shelving track shall include a minimum of four (4) aluminum Uni-strut style channel tracks, mounted vertically on compartment side walls or vertical partitions. There shall be one (1) formed aluminum shelf angle bracket per shelving track to mount each shelf, tray, or adjustable storage module. Shelving hardware shall be heavy-duty commercial quality, providing unlimited vertical position adjustments.

SIDE COMPARTMENT SHELVING

Adjustable shelving shall be installed in the side compartments as identified later in this specification. Each shelf shall be made of 0.125" smooth aluminum with a 2.00" high perimeter retaining lip with welded corners. Shelves shall have a rated capacity of 300-lbs. and shall be supported by a minimum of two (2) heavy-duty shelf brackets. Shelves shall have a maintenance free mill finish.

Bidder Comply:

YES NO

FENDER PANELS

A single piece wheel well panel made of 0.125" aluminum sheet shall be installed with no sharp edges to cut or damage cleaning equipment used in the wheel well area. The wheel well design shall provide for maximum wheel jounce and for use of tire chains without contacting the fender panel.

REAR WHEEL WELL LINERS

The rear wheel wells shall be equipped with replaceable circular liners to prevent road debris damage to adjacent side compartments. The liners shall be made from a single circular panel of 0.090" smooth aluminum and shall be the full depth of the side compartments. They shall be bolted in place and shall feature end flange bottom drains.

REAR BODY FENDERETTES

An extruded rubber fenderette shall be installed around the outboard edge of the rear wheel well openings to protect the body sides from road debris. They shall be bolted to the body and shall be replaceable. Holes shall be drilled into the fenderettes, transfer drilled into the wheel well panels.

TREADPLATE AND TRIM

All treadplate overlays shall be 3003-H14 bright aluminum laser cut to fit. 3M double sided tape shall be applied to the NON-TREAD BRITE side. All treadplate shall be installed after paint.

FRONT WALL BODY OVERLAY

There shall be 0.063" polished aluminum treadplate provided for the entire front of the body to protect the paint from road debris and paint chipping. The panels shall be fit, have 3M Tape applied and installed after paint.

TOP PROTECTION

There shall be .063" embossed aluminum treadplate overlay provided for the compartment top outside of the integrated hose bed. The panels shall be fit, have 3M Tape applied and installed after paint.

SIDE OF BODY RUB RAILS

Replaceable extruded aluminum flat bar rails, 3.00" high x 0.250" thick, shall be provided below the lower side compartments. Each rub rail shall have black rubber stand-off spacers. All rub rail ends shall be angled back toward the body to eliminate the possibility of snagging crew clothing or equipment.

Bidder Comply:	
YES	NO

- Door Opening: 38.126" wide x 35.297" high
- Compartment Depth: 22" deep

The compartment shall have a roll up door. The door shall have a satin finish.

MANUAL KEYED DOOR LOCK

The door shall have a cylindrical lock installed by the roll-up door manufacturer.

The lock key type shall be: J-236

COMPARTMENT LIGHTING

One (1) 31" Luma Bar LED strip light shall be installed inside the compartment. The compartment light shall be controlled by a magnetic "On-Off" switch located on each compartment door.

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

SINGLE SIDED PAC TRAC

Aluminum Pac Trac channel material for tool and equipment mounting shall be provided in R1, R2, and R3 compartments.

OFFICER SIDE SUCTION HOSE STORAGE

One (1) horizontally mounted aluminum hard suction hose trays with Velcro straps shall be provided above the right-side body compartments.

PIKE POLE STORAGE

Two (2) pike pole storage tubes shall be provided in the ladder compartment.

PIKE POLE SOURCE

The pike poles shall be provided by Ashfield Fire Department.

DRIVER SIDE FRONT WHEEL WELL PROVISION

The wheel well provisions shall be located on the left side of the apparatus, ahead of the rear wheels.

Bidder Comply:	
YES	NO

SCBA BOTTLE COMPARTMENT

One (1) SCBA bottle compartment, with a Cast Products access door, shall be installed in the wheel well area. The compartment shall be constructed of an 8" diameter plastic polymer. The compartment shall allow the storage of an SCBA cylinder up to 7.75" in diameter.

DRIVER SIDE REAR WHEEL WELL PROVISION

The wheel well provisions shall be located on the left side of the apparatus, behind the rear wheels.

SCBA BOTTLE COMPARTMENT

One (1) SCBA bottle compartment, with a Cast Products access door, shall be installed in the wheel well area. The compartment shall be constructed of an 8.00" diameter plastic polymer. The compartment shall allow the storage of an SCBA cylinder up to 7.75" in diameter.

FUEL FILL

An aluminum cup style fuel fill shall be installed in the left-hand side wheel well rear of the axle. It shall be labeled "Ultra Low Sulphur Diesel Fuel Only".

OFFICER SIDE FRONT WHEEL WELL PROVISION

The wheel well provisions shall be located on the right side of the apparatus, ahead of the rear wheels.

SCBA BOTTLE COMPARTMENT

One (1) SCBA bottle compartment, with a Cast Products access door, shall be installed in the wheel well area. The compartment shall be constructed of an 8" diameter plastic polymer. The compartment shall allow the storage of an SCBA cylinder up to 7.75" in diameter.

OFFICER SIDE REAR WHEEL WELL PROVISION

The wheel well provisions shall be located on the right side of the apparatus, behind the rear wheels.

SCBA BOTTLE COMPARTMENT

One (1) SCBA bottle compartment, with a Cast Products access door, shall be installed in the wheel well area. The compartment shall be constructed of an 8.00" diameter plastic polymer. The compartment shall allow the storage of an SCBA cylinder up to 7.75" in diameter.

Bidder Comply:	
YES	NO

STEPS

All steps shall have a surface area of at least 35 square inches and shall be able to withstand a load of at least 500 pounds. Steps shall be provided at any area that personnel may need to climb and shall be adequately lighted.

OFFICER SIDE REAR FOLDING STEPS

Four (4) Innovative Controls model 3004234 folding steps shall be provided on the right-hand side rear of the body. Each step shall have two (2) cast-in handles, that are large enough for use while wearing gloves. The step(s) shall exceed the NFPA requirements for stepping surface and slip resistance.

OFFICER SIDE FRONT OF BODY FOLDING STEPS

Four (4) Innovative Controls model 3007732 folding steps shall be provided on the right-hand side front of the body. Each step shall have one (1) cast-in handle, that are large enough for use while wearing gloves. The step(s) shall exceed the NFPA requirements for stepping surface and slip resistance.

EXTERIOR GRAB RAILS

Each grab rail shall be non-slip, 1.25" diameter extruded polished aluminum grab rails with rubber inserts designed to provide maximum gripping ability, strength, and durability. The rails shall comply with NFPA 1901.

VERTICAL MOUNTED GRAB RAILS

Two (2) extruded aluminum non-slip grab rails shall be provided and vertically mounted on the rear of the apparatus, one (1) on each side of the body.

OFFICER SIDE FRONT OF BODY GRAB RAIL

One (1) extruded aluminum non-slip grab rail shall be provided and mounted on the front, upper, right hand side of the body.

HORIZONTAL MOUNTED GRAB RAIL

One (1) extruded aluminum non-slip grab rail shall be provided and horizontally mounted below the hosebed on the rear of the apparatus.

NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:

Bidder Comply:	
YES	NO

NFPA MINIMUM ELECTRICAL LOAD DEFINITION

The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode:

1. Propulsion engine and transmission.
2. The clearance and marker lights.
3. Communication equipment. 5 amp default.
4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.
5. Minimum warning lights required for "blocking right of way" mode.
6. The current to simultaneously operate and fire pump and all specified electrical devices.
7. Anything defined by Ashfield Fire Department, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

The first electrical test to be performed will be the Reserve Capacity Test. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, the items 1-7 shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed shall be Alternator Performance Test at Full Load. All electrical loads shall be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage shall not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test.

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees.

12 VOLT ELECTRICAL SYSTEM

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus

Bidder Comply:	
YES	NO

manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to using the device shall not exceed 10 percent. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. All exposed wiring shall be protected in a loom with a minimum 289-degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified every three inches (3") by color coding or permanent marking with a circuit function code.

The electrical circuits shall be provided with low voltage overcurrent protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The overcurrent protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system shall include the following:

- Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- The electrical wiring shall be harnessed or be placed in a protective loom.
- Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.
- All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

ROCKER SWITCHES

The warning lights and electrical functions shall be controlled by switch panels as detailed in the chassis specification.

CAB GROUND LIGHTS

The cab ground lights shall be supplied with the cab chassis.

PUMP PANEL GROUND LIGHTS

Two (2) LED ground lights with an outward facing angle brackets shall be installed under the pump panel running boards. One (1) light shall be located on the driver side and one (1) light located on the officer side of the apparatus.

FRONT OF BODY GROUND LIGHTS

Two (2) LED ground lights with an outward facing angle brackets shall be installed under the front of the body. One (1) light shall be located on the driver side, and one (1) light shall be located on the officer side of the apparatus.

REAR STEP GROUND LIGHTS

Two (2) LED ground lights with an outward facing angle bracket shall be installed under rear step of the apparatus, one (1) each side.

The ground lights shall automatically activate when the parking brake is applied.

HAZARD LIGHT

The hazard / door ajar light shall be supplied with the custom chassis.

REAR DIRECTIONALS

Rear directional lighting shall be supplied as follows:

Two (2) Whelen model M62BTT LED brake/taillights shall be installed on the rear of the body. Each light shall have a red lens.

Two (2) Whelen model M62T Amber LED turn signal lights shall be installed on the rear of the body. Each light shall have a color lens.

Two (2) Whelen model M62BU LED reverse lights shall be installed on the rear of the body.

Bidder Comply:	
YES	NO

REAR FACING UPPER BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the rear of the apparatus body, one (1) each side. Each light shall be supplied and installed with a chrome bezel.

SCENE ACTIVATION

The scene lights shall be activated by individual rocker switches located in the switch panel, one (1) for each side of the apparatus.

SCENE LIGHT SWITCHING

The rear scene lights shall activate automatically upon placing the transmission into reverse.

WARNING LIGHT FLASH PATTERN

All of the perimeter warning lights shall be set to the default NFPA flash pattern as provided by the warning light manufacturer.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be supplied with the custom chassis.

LIGHT BAR

One (1) Whelen Freedom IV LED 72.00" lightbar shall be mounted on the front of the cab roof. The lightbar shall feature eight (8) red LED light modules and two (2) clear LED light modules. The entire lightbar shall feature a clear lens. The clear lights shall be disabled with park brake engaged.

LIGHT BAR SWITCH

The light bar shall be controlled by a rocker switch located on the switch panel. The switch shall be labeled "LIGHT BAR". The switch shall only be active when the master warning switch is engaged.

ROTO RAY WARNING LIGHT

A roto-ray warning light shall be installed on the apparatus. The roto – ray shall be provided in addition to the NFPA required Optical Warning Light Package.

This shall be switched independently from the light package.

LOWER INTERSECTION WARNING LIGHTS

The lower intersection warning lights shall be supplied with the cab.

LOWER CHASSIS SIDE WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, one (1) each side of the cab mounted over the front wheel well directly over the center of the front axle.

The driver side warning light shall be a Whelen Model M6R red Super-LED with red lens. The officer side warning light shall be a Whelen Model M6R red Super-LED with red lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model M7 Series LED warning lights shall be installed, one (1) each side of the apparatus, mid-body.

The driver side warning light shall be a Whelen Model M7R red Super-LED with red lens. The officer side warning light shall be a Whelen Model M7R red Super-LED with red lens.

Each light shall be mounted with a Whelen Model M7FC chrome flange.

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights shall be installed, one (1) each side of the lower rear of the apparatus body.

The driver side warning light shall be a Whelen Model M6R red Super-LED with red lens. The officer side warning light shall be a Whelen Model M6R red Super-LED with red lens.

The warning lights on the rear of the body shall be mounted in lower section of each taillight casting.

LOWER WARNING SWITCH

The lower warning lights shall be controlled by a rocker switch on the switch panel. The switch shall be labeled "LOWER LEVEL WARNING". The switch shall only be active when the master warning switch is engaged.

ELECTRIC SIREN AND CONTROL

One (1), Whelen model 295HFS2 100/200-watt selectable output electronic siren with a flush mount control head shall be supplied and installed in the cab. This siren is a full function system

Bidder Comply:	
YES	NO

including radio repeat, public address, SI-Test, 17 scan-lock selectable siren tones and a unidirectional pre-wired microphone.

ELECTRONIC SIREN SPEAKER

One (1) Federal Signal model ES100 Dynamax 100-watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model ESFMT with” Electric F” grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located on the right-hand side of the bumper.

CHASSIS PAINT

The chassis shall be painted by the OEM Chassis Manufacturer.

PAINT PROCESS

The body exterior shall have no mounted components prior to painting to assure full coverage of treatments. Compartment doors (if applicable) will be painted separately to assure proper paint coverage on body, doorjamb and door edges.

All surfaces shall be sanded to remove all burrs and imperfections before etching and treatment.

The body shall be totally removed from the chassis during the painting process to ensure the entire unit is covered.

PPG wax & grease solvent shall be used to clean and prep the body surface prior to any sanding. The surface shall then be rinsed with freshwater. This step removes wax, grease and other surface contaminants, thus leaving a bright, clean and conditioned surface.

PAINT FINISH

The body shall be painted with a PPG Delfleet Evolution Paint System.

As part of the curing process the painted body shall go through a baking process. The painted components shall be baked at 185 degrees for 3 hours to achieve a complete coating cure on the finished product.

After bake and ample cool down time, the coated surface shall be sanded using 3M 1000, 1200, and or 1500 grit sandpaper to remove surface defects. In the final step, the surface shall be buffed with 3M Super-duty compound to add extra shine to coated surface. No more than .5 mil shall be removed in this process.

All products and technicians shall be certified by PPG every two (2) years.

ANTI-CORROSION PROTECTION

Where dissimilar metals must be joined, overlaid, share perforations or otherwise come in contact with each other to achieve construction, performance or aesthetic requirements, such items shall be separated by a continuous contact, nonconductive coating or film to prevent or otherwise mitigate the effects of electrolysis. Only stainless-steel hardware and fasteners shall be used in the construction of the apparatus. Where stainless steel fasteners pass through an aluminum component, the fastener contact surfaces, including the head, washer and nut shall be coated with ECK anti-corrosion material.

UNDERCOATING

The body underside, including the sub-frame and the inside of the wheel wells, NOT THE WHEEL WELL LINERS, shall be thoroughly coated with SWT commercial automotive undercoat and sound deadening material to protect the body module against corrosion. The coating shall be black and shall be tested to ASTM B117 Salt Spray test for 1,000 hours at 10-mils.

COMPARTMENT FINISH, ZOLATONE

The apparatus side compartment interiors are to be coated with Zolatone, a polychromatic, modified nitrocellulose coating with a flat background color with accenting fleck colors. The compartments shall be cleaned with a grease remover, and then the surface sanded and prepared for painting. The Zolatone finish is washed and waxed like paint and is resistant to man solvents and wear.

Apollo Grey in color.

WHEEL RIMS

The chassis wheels shall be as furnished by the chassis OEM. No additional finishes shall be provided by the apparatus manufacturer.

REFLECTIVE STRIPING & LETTERING PACKAGE

Bidder shall be responsible for supplying and installing reflective striping and graphics package on the proposed apparatus. Ashfield Fire Department shall be responsible for providing exact schematics of the desired lettering and striping package to be installed on the proposed apparatus.

CHEVRON STRIPING

At least 50% of the rear of the unit shall be covered with Red and Fluorescent Yellow-Green alternating 6" stripe in an inverted Chevron pattern.

Bidder Comply:	
YES	NO

Ashfield Fire Department, and pick up or delivery of the completed apparatus to Ashfield Fire Department. Any unauthorized alterations or modifications to the apparatus shall void this warranty.

TANK WARRANTY

United Plastic Fabricating, Inc. (hereinafter called “UPF”) warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines.

APPARATUS ELECTRICAL WARRANTY

The apparatus electrical system as detailed herein shall have an electrical warranty against defects in materials and workmanship for a period of two (2) years, effective upon final payment in full by Ashfield Fire Department, and pick up or delivery of the completed apparatus to Ashfield Fire Department. Any unauthorized alterations or modifications to the electrical system shall void this warranty.

AKRON BRASS WARRANTY

The Akron Brass valves shall be warranted by Akron Brass for a period of ten (10) years from the date of delivery. The warranty for electronics shall be warranted by Akron Brass for a period of five (5) years from date of delivery.