BULLOCH COUNTY BOARD OF COMMISSIONERS
115 NORTH MAIN STREET
STATESBORO, GEORGIA 30458

REQUEST FOR PROPOSAL

The Bulloch County Board of Commissioners (herein after referred to as the "County") is soliciting competitive sealed proposals from qualified suppliers for the purchase of one (1) 1500 GPM Custom Pumper to be used by the Bulloch County Fire Department. It shall be solely within the discretion of Bulloch County to determine whether another make and/or model are "substantially equivalent."

The outside of the sealed envelope shall include the wording: Custom Pumper RFP; Due Date: November 17, 2022 @ 3:00 P. M.; Attn: Faye Bragg, Purchasing Manager.

Proposals will be received until 3:00 P.M. local time on November 17, 2022, at the Bulloch County Board of Commissioners, North Main Annex, 115 North Main Street, Statesboro, Georgia 30458. The original proposal along with three (3) copies and supporting documents must be submitted in a sealed clearly marked envelope. It is the sole responsibility of the vendor to make sure the submittal package is received by due date and time. Any proposal received after due date and time shall not be accepted. The proposal handling process will take place in Conference Room 102 at 115 N Main Street, Statesboro, GA 30458 @ 3:00 pm on November 17, 2022. Anyone may attend the proposal handling process. A public opening of proposals will not occur at the time and date indicated above. Proposals received will be officially recorded, no cost components will be read aloud. All proposals received will be turned over to the evaluation committee for opening, review, deliberation, and recommendation. After award is made, a tabulation of pricing will be available to the public.

The written proposal documents supersede any verbal or written prior communications between the parties.

A proposal package may be requested by contacting Faye Bragg, Purchasing Manager, at fbragg@bullochcounty.net or http://bullochcounty.net/procurement/. Any addenda to this solicitation will be issued through the purchasing office, and it will be the sole responsibility of the proposer to periodically check the County's website for any addenda for this project. Failure to include a signed copy of any addenda issued for this project in the submitted package will result in the submission not being considered for this project.

Local Buying Preference: Departments are encouraged to use local vendors whenever possible.

However, the County cannot pay a much higher price to do so because there is an obligation to the taxpayers to use our financial resources wisely.

For all purchases of $15,000 or more, if the quality, service, price, and other factors are substantially equal, then a local vendor whose offer is within 5% of the lowest offer may be given an opportunity to match the lowest offer. This policy shall be stated in all applicable solicitations but does not apply to public works construction projects or road projects.

For purposes of this provision, a "local vendor" is one that 1) has a principal business location within the boundaries of Bulloch County; 2) has a valid occupational tax certificate issued by a jurisdiction located in Bulloch County; and 3) owns the property where the principal business location is located, or has a lease for a term of no less than one year for the principal business location which in effect requires the local vendor to pay the ad valorem taxes on the leased property.

A "principal business location" is further defined as a permanent facility with a physical location in Bulloch County where it can be demonstrated 1) that the goods or services are either made, stored, processed, sold, or rendered at the facility; and 2) that substantial administrative or management activities are performed by one or more employees, principals, representatives or agents for the purpose of transacting business.

To request the local vendor preference, a vendor must include a completed local vendor form with its submitted proposal. It is the vendor's responsibility to provide clear and convincing evidence that it meets the requirements for being considered a local vendor pursuant to this provision. The determination of whether a vendor has submitted sufficient evidence to support being deemed a local vendor shall be solely within the discretion of the Board of Commissioners and shall not be subject to challenge.

To request local vendor preference, you must contact the Purchasing Manager for the proper form to complete. The completed form must be included with the submitted package to be considered for the local vendor preference

Award And Reservations: It is understood and agreed that in consideration of the sum of One Dollar and No/100 ($1.00) cash in hand paid, receipt whereof is hereby acknowledged, the vendor agrees that this proposal shall be an option, which is hereby given to the Purchaser to accept or reject this proposal at any time within sixty (60) calendar days from the date on which it is recorded. It is expressly convenanted and agreed that this proposal is not subject to withdrawal by the supplier during the term of said option. The party submitting the proposal is solely responsible for delivering the proposal to the exact location and by the time stated. The County reserves the right to reject any or all proposals and to waive technicalities and informalities in proposals, accepting the proposal deemed in the best interest of the County. The County reserves the right to use or not use any alternate offer associated with this solicitation.

Award will be made to that responsive and responsible proposer with the best offer for Bulloch County, price and other factors considered.

Bulloch County has an Equal Opportunity Purchasing Policy. Bulloch County seeks to assure that all segments of the business community have access to supplying goods and services needed by the County. The County provides equal opportunity for all businesses and does not discriminate against any vendor regardless of race, color, religion, age, sex, or national origin.

A selection criterion is outlined in the request for proposal documents. Bulloch County reserves the right to reject any or all proposals, to waive technicalities and to make an award deemed in its best interest.

TERMS AND CONDITIONS

Changes: No change shall be made to this invitation except by written modification by the Purchasing Department.

Compliance: The County's failure to insist on compliance with any of the terms or conditions of this RFP shall not be deemed a waiver of the County's right to insist at any time on full compliance with any of the terms and conditions stated herein.

Disqualification: Proposals may be disqualified for: a) receipt of the proposal by the County past the stated deadline; b) any irregularities; c) unbalanced unit price or extensions; d) unbalanced value of any items; or e) failure to complete proposal information correctly. If in the opinion of the County, the supplier is not in a position to perform the contract, the proposal may be disqualified and rejected. The County reserves the right to waive any minor informalities or irregularities.

Lawsuits/Bribery/Conflicts of Interest/Defaults: Prospective suppliers shall disclose any record of pending lawsuits, criminal violations and/or convictions, conflicts of interest, or contract defaults.

Liability: The County is not liable for any cost incurred in the preparation of the proposal. Nor is the County bound by any information provided to suppliers prior to the proposal opening unless reduced to writing and distributed as a written addendum.

Clarification of Submittals: The County reserves the right to seek clarification of any point in a supplier’s sealed proposal submission, or to obtain additional information.

Exceptions: Conditional proposals or those that take exception to the specifications will be considered only at the discretion of the Project Manager.

Correction or Withdrawal of Proposals, Cancellation of Awards: Correction or withdrawal of submissions after the deadline for submitting proposals has passed, or cancellation of awards or contracts may be permitted only to the extent that the supplier can show by clear and convincing evidence that a clerical mistake of non-judgmental character was made, or where the withdrawal or cancellation is in the best interest of the County.

County Obligations: The County has a standing policy to disqualify or withhold compensation to vendors, contractors, and professional consultants if there are existing obligations to the

County for any liens, ad valorem taxes, licenses, or other financial remittances due to the County.

Award: If awarded, the award will be made to that responsive and responsible supplier or suppliers whose proposal is most advantageous to the County, price and other factors considered. The County specifically reserves the right to make an award to more than one supplier if the County determines that it is in the County's best interest to do so, and to reject any and all proposals. The supplier or suppliers to whom the award is made will be notified at the earliest possible date.

Payment: Payments will be made upon completion of all work and acceptance by the County on invoices submitted and approved by the proper County representative within thirty (30) days receipt of invoice. Itemize all invoices in full. Be sure our order number is on your invoice.

Inquiries Regarding Payment: All inquiries regarding payment of invoices are to be directed to Accounts Payable, (912) 764-6245.

Anti-Discrimination Clause: Bulloch County does not discriminate against any person because of race, color, gender, religion, national origin, or handicap in employment or services provided.

Questions: All questions concerning this RFP shall be directed to the Purchasing Manager in writing (email is preferable). Questions will be directed to the Purchasing Manager no later than November 8, 2022 @ 4:00 PM. Responses to questions will be addressed no later than November 9, 2022 @ 4:00 PM.

Reservations: The County reserves the right to reject any or all Proposals, to award in whole or in part and to waive minor immaterial defects in Proposals. Proposals shall be binding for a period of sixty (60) calendar days from the time proposals are recorded.

Timely Delivery: If indicated in the Price Schedule, supplier shall indicate time of delivery as the number of calendar days following receipt of order by the supplier to the receipt of goods or services by the County. Time of delivery will be considered in the award.

Time is of the essence, and the purchase order is subject to termination for failure to deliver on time. The acceptance by buyer of later performance with or without objection or reservation shall not waive the right to claim damage for such breach nor constitute a waiver of the requirements for the timely performance of any obligation remaining to be performed by the vendor.

Indemnification: The vendor agrees to indemnify, hold harmless, and defend the County, its officials, and employees (hereinafter collectively "the indemnitees") from and against any and all claims, damages, liabilities, suits, proceedings, costs, and expenses of litigation (including, without limitation, reasonable attorney's fees) related to or arising in any way out of the performance of this Agreement, unless such is attributable to the sole negligence of the indemnitees. The indemnity obligation of the vendor will survive the expiration or termination of this Agreement.

Insurance: The proposer must submit with their proposal documents, a Certificate of Liability Insurance indicating required insurance coverages. This insurance will be kept in force during the duration of the contract. This certificate will be from the prime builder only. Failure to provide and maintain insurance may cause cancellation of contract. Contractor shall purchase from and maintain with a company or companies authorized to do business in the state of Georgia the following types of insurance:

A. Statutorily required workers' compensation insurance.

B. Commercial general liability insurance, **with an endorsement naming the County and its officials, officers, and employees as additional insured**, and with limits of not less than $1,000,000.00 per occurrence and $2,000,000.00 aggregate.

C. Motor vehicle liability insurance with limits of not less than $1,000,000.00 for bodily injury to or death of one person in any one accident, and not less than $2,000,000.00 because of bodily injury to or death of two or more persons in any one accident; and not less than $250,000.00 because of injury to or destruction of property.

D. Product Liability Insurance with a minimum of $2,000,000.00.

Bonds: Submitted package must be accompanied by a Bid Bond in an amount not less than five percent (5%) of the total proposal. No other type of guaranty will be accepted other than a five percent (5%) Bid Bond. **Bonding companies must be on the US Department of Treasuries listing of approved sureties (Dept. Circular 570).**

Immigration: On July 1, 2009, the Georgia Security and Immigration Compliance Act (SB 529, Section 2) became effective. All employers, contractors and subcontractors entering into a contract or performing work for Georgia's public employers in the amount of $2,500 or more must sign an affidavit that he/she has used the E-verify System. This includes out-of-state contractors. E-verify is a no-cost federal employment verification system to insure employment eligibility. For more information on E-verify please go to http://www.dhs.gov/e-verify. An affidavit is enclosed in this solicitation. All Proposers are to read and complete the E-verify Contractor Affidavit enclosed to be returned with response. Failure to do so will result in your solicitation response being rejected as non-responsive.

If you use a third-party administrator, do not enter their name or number in place of the Federal Work Authorization E-verify Company ID#; the administrator's name or their number does not replace the actual number you were issued. You must contact your administrator for the number and the date of authorization (when the number became effective) for your company. At this time there are no alphabetical letters in the E-verify Company ID#.

If you only include the third-party administrators name or their number and not the actual authorization number, you were issued this will result in your solicitation response being rejected as non-responsive.

Sealed packages must be mailed, hand delivered, or service delivered to the following address: no faxed or e-mailed submittals will be accepted for sealed RFPs.

Bulloch County Commissioners
Attn: Purchasing Manager
115 N Main Street
Statesboro, GA 30458

Proposers will be fully responsible for the delivery of their proposal in a timely manner. Reliance upon U.S. Mail or other carriers is at the Proposer's risk. Late submissions will not be considered.

SCOPE OF WORK

A. **Scope** - Bulloch County is soliciting proposals with the intent to purchase one 1500 GPM Custom Pumper. The attached document is Bulloch County's minimum specifications for the pumper. The specifications should be used by suppliers as a guideline for submitting proposals. Proposals should be performance oriented. Also, a fast or immediate delivery of this equipment is of the utmost importance. Both are major considerations in the evaluation and award of proposals.

Bulloch County understands that it is improbable that a supplier will have a Pumper that will fully comply with the intent of the specifications. All suppliers are encouraged to submit proposals for any Pumper at their disposal that may meet the intent of the specifications. Bulloch County will evaluate proposals to determine which is in the best interest of Bulloch County.

B. **Equipment and Vendor Requirements** - Since the continuous operation of the Pumper is of the utmost importance and most times of an emergency nature, it is necessary that the successful proposer be in a position to render prompt parts and service. The successful supplier shall have a qualified service facility and have access to parts inventory within 200 miles of Statesboro Georgia. Said parts inventory shall be of sufficient size and variety to offer a level of parts availability of 95% within 48 hours from time of order placement by customer

Suppliers must submit with their proposal, the latest printed specifications and advertising literature on the units they propose to furnish.

The RFP, if awarded, will be awarded to that proposer which, in the opinion of Bulloch County, is in the best interests of Bulloch County, price and all other factors being considered. Bulloch County reserves the right to reject any or all proposals and to waive any technicalities or informalities in the proposal process.

Units offered under this RFP shall be new, standard production models of the latest design in current production. The Pumper shall be completely assembled, serviced, and work-ready when delivered to Bulloch County.

The design of the mechanical members shall be such that the stress imposed through normal shock loads at maximum engine torque shall not cause rupture or permanent deformation or undue wear on any member.

Suppliers shall be prepared to give a complete demonstration of the merits of the machines offered as directed by the purchaser. The machines so demonstrated shall be complete as offered by the supplier for this proposal.

The price or prices quoted shall include all transportation charges fully prepaid to Bulloch County 911 Center, 17245 Highway 301 North, Statesboro, Georgia 30461. **Delivery Date Must Be Stated On Price Schedule.**

C. Proposal Submission Instructions

A. General Requirements

1. Proposer's Response - Suppliers are asked on the pricing schedule to state if their proposal complies with our specifications. If not, all "exceptions" shall be listed on the exceptions sheet.

2. Proposals shall include a manufacturer specification that details the equipment the supplier is offering.

3. Upon request, the proposed demonstrator Cab Tractor and Flex Wing Rotary Cutter shall be made available for inspection by the evaluation team on-site in Bulloch County.

4. No supplier/contractor is to discuss any aspect of this Request for Proposal with any Bulloch County employee without approval of the Purchasing Departments representative. This is to ensure that all prospective respondents have the same level of knowledge relative to the project as well as ensuring the additional data is made available to all suppliers.

5. RFPs shall be submitted in a sealed envelope/package. Envelope/package shall be addressed and identified as stated above.

7. All submissions and supporting materials as well as correspondence relating to this RFP become property of Bulloch County when received. Any proprietary information contained in the submission should be so indicated. However, a general indication that the entire contents, or a major portion, of the submission is proprietary will not be honored.

8. Bulloch County reserves the right to reject any or all proposals, in whole or in part, to negotiate changes in the scope of services and to waive any technicalities as deemed in its best interest.

9. The supplier shall provide at least four (4) references of purchasers the supplier has sold this type of Pumper to within the last five years.

D. **Proposal Selection Procedures** - The proposal will be evaluated by a selection committee selected by Bulloch County. The Proposals will be evaluated in order to select the Supplier/Contractor that rate highest according to the criteria listed below. The highest scoring Supplier/Contractor will be determined, and the selection committee will make a recommendation to the Board of Commissioners.

Proposals will be evaluated based on their relative responsiveness to the criteria described above and with those criteria's values weighted as shown below:

Criteria	Maximum Points
Earliest Guaranteed Delivery	30 points
Compliance with Standard Specifications	30 points
Cost	25 points
References	10 points
Demonstration Assessment	5 points
Total	100 points

E. **Reservations** - Bulloch County reserves the right to reject all proposals, to negotiate changes in the Scope of Work or services to be provided, and to otherwise waive any technicalities.

F. **Pricing** – Pricing must be kept firm for a period of sixty (60) calendar days following the proposal due date and may be extended by mutual written agreement.

G. **General** - This is an engineer, design, construct and deliver type specification and it is not the intention of this agency to exclude vendors or manufacturers of similar or equal equipment of the types specified. It should be noted, however, that these specifications are written around specific needs of this agency. Other brands will only be considered providing the vendor provides documentation in the proposal that the brand offered meets or exceeds the quality of the actual brand called for in the specifications. It shall be solely within the discretion of Bulloch County to determine whether another make and/or model are "substantially equivalent."

H. All proposal pricing shall be complete and include warranty and delivery of the completed apparatus to this agency.

Payment shall be made in accordance with these specifications and the Proposal submitted by the supplier. Payment will be made upon acceptance of the equipment specified under these specifications.

No proposal shall be withdrawn for a period of sixty (60) days after the date listed above for receiving proposals. Suppliers will be fully responsible for the delivery of their proposals in a timely manner. Reliance upon U. S. Mail or other carriers is at the supplier's risk. Late proposals shall not be considered. Bulloch County reserves the right

to reject any or all proposals in whole or in part and to waive technicalities and informalities.

Full payment will be made after the unit is received, inspected, and found to comply with procurement specifications, free of damage and properly invoiced.

I. Proposal documents shall be submitted in the following order:

1. Summary of Company profile
2. Proposer's/project team's experience and qualifications to provide Pumper Apparatus, including past projects
3. Detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed
4. Pricing Schedule, with pricing, manufacturer, model, and year for the unit
5. References
6. Warranties
7. All requested certifications certifying performance
8. Graphic Drawing
9. Manufacturer's certificate of ISO compliance for each manufacturing facility
10. Certificate of Liability Insurance with required coverages
11. Bid Bond of not less than 5% of the proposed price
12. Non-Collusion Affidavit properly executed
13. Bidder declaration properly executed
14. E-Verify Affidavit properly executed
15. Exceptions to Exception Sheet with Letters of Exception (if applicable)
16. Brochures or cut sheet information

The items listed above must returned in the sealed RFP submittal package. All forms must be completed, signed, and notarized where indicated. Failure to return the items listed above will be justification for not accepting a submittal package for this project.

BULLOCH COUNTY 1500 GPM CUSTOM PUMPER SPECIFICATIONS

Intent of Specifications

It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment, and appliances with which the successful proposer must conform.

Any brand name or manufacturer's reference used in these specifications is for the purpose of describing a standard of quality, performance, and characteristics desired and not intended to limit or restrict competition. Proposers must state the brand name and model being offered and provide proof that the merchandise offered is equal or equivalent to the specifications. The County shall be the sole entity to determine acceptance or non-acceptance of equivalents.

The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1901, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.

The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. **No exception.**

Each proposer shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus.

Each proposal must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All proposal specifications must be in the same sequence as the advertised specification for ease of comparison. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any proposer who fails to submit detailed construction specifications, or who photocopies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. **No exception**.

All proposers are required to detail the payment terms for apparatus on the proposal page. Any required prepayments or progress payments must be explained in detail.

ISO Compliance

The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000.

The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer's certificate of compliance affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service.

The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.

If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.

By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the proposal.

Service Requirements

Each proposer shall supply, with their proposal, detailed information on the proposer's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the proposer is able to provide. Proposer shall state the number of miles from the Purchaser's facility to the nearest fully staffed repair facility operated by the proposer. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified. Service capabilities will be one of the criteria for award of this contract.

Single Source Manufacturing - Pumper

In order to protect the Purchaser from divided warranty responsibility between chassis and body manufacturers, proposals will only be accepted from apparatus builders who design, fabricate, and assemble the complete apparatus at their own facilities. This shall include the cab shell,

chassis assembly, and complete body structure. Private labeling of another manufacturer's chassis will not meet the requirements of this section. **No exception**.

Certificate of Insurance

The proposer must submit with their proposal documents, a Certificate of Liability Insurance indicating required insurance coverages. This insurance will be kept in force during the duration of the contract. This certificate will be from the prime builder only. Failure to provide and maintain insurance may cause cancellation of contract. Contractor shall purchase from and maintain with a company or companies authorized to do business in the state of Georgia the following types of insurance:

A. Statutorily required workers' compensation insurance.

B. Commercial general liability insurance, **with an endorsement naming the County and its officials, officers, and employees as additional insured**, and with limits of not less than $1,000,000.00 per occurrence and $2,000,000.00 aggregate.

C. Motor vehicle liability insurance with limits of not less than $1,000,000.00 for bodily injury to or death of one person in any one accident, and not less than $2,000,000.00 because of bodily injury to or death of two or more persons in any one accident; and not less than $250,000.00 because of injury to or destruction of property.

D. Product Liability Insurance with a minimum of $2,000,000.00.

The Certificate must be made out to the Purchaser and must be original. Submission of a non-original Certificate or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section.

Delivery

The proposer shall state the time required for delivery of the completed unit on the proposal page. The completed unit shall be delivered to the purchaser with full instructions provided to Fire Department personnel on operation, care, and maintenance of apparatus at the purchaser's location.

Exceptions

The following apparatus specifications are considered minimum design and construction standards against which the apparatus will be inspected. It is the intent to receive proposals on equipment/apparatus meeting the attached detailed specifications in their entirety. Any proposals being submitted, without "Full Compliance" with these specifications shall so state on the exceptions to specifications sheet, followed by a detailed "Letter of Exceptions" listing the areas

of non-compliance. The reference must include page number, paragraph, and the exact nature of the exception.

Failure to follow this format, provided for the convenience of the County, will render the submitted proposal non-responsive and ineligible for award of contract.

The County may add the statement "No Exception" to a component or design feature in these specifications. In the interest of fleet conformity or specific performance requirements, the County will not permit exceptions taken to these item(s). The County reserves the right to reject any or all proposals and purchase the equipment it deems most suitable to its needs. The County does not, in any way, obligate itself to accept the lowest or any proposal. Any proposer taking total exception to the complete specification, or a major element will result in immediate rejection of the proposal.

Pre-Construction Conference

A pre-construction conference shall be held at the Bulloch County 911 Center within fourteen (14) days from the date of the order. Specific drawings and specifications of the proposed apparatus shall be available for review at this conference.

Final Inspection

A final inspection of the apparatus shall be held at the factory of the successful proposer. All travel, hotel and food shall be supplied for three (3) representatives of Bulloch County. If the factory is over 275 miles from Bulloch County, round trip commercial airfare must be provided. **(NO EXCEPTIONS)**.

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side: 200’ 2.5” DH, 1000’ 5” LDH and 600’ 3” DJ.

Overall Height Restriction

The apparatus shall have an overall height restriction of 9’10” (unloaded condition).

The height of the apparatus shall be measured with no water/foam in the water/foam tank, no equipment, no ground ladders, and no hoses.

Overall Length Restriction

The completed unit shall have an overall length restriction of 33’.

NFPA Compliance

The supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

Equipment Capacity

Equipment allowance on the apparatus shall be 2500 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

Front Bumper Extension

The bumper shall be extended approximately 20” from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16” (.375”) aluminum tread plate material.

Heavy Duty Bumper with Drivers Side Notch for Q2B Siren

A heavy duty 10" high formed type front bumper constructed of 1/4" (.250") steel shall be provided. The front corners of the bumper shall be provided with a 45-degree tapered to produce an 8.5" wide mounting surface and to reduce swing clearance.

Additional support shall be provided from the frame rails for the outboard side areas on bumper extensions greater than 12in.

Driver’s side of bumper shall be notched for recessed Q2B siren.

The bumper shall be painted job color as specified.

Bumper Tray - Center

A hose tray constructed of 1/8” aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep (13" to the top of the slats). One-inch-thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Lid, Bumper Hose Tray

The center bumper tray shall have a diamond plate lid. The lid shall be hinged and include a D-Ring latch, rubber seal and gas shock hold open device.

Rear Underbody Support Frame

The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails. The frame rails and frame extension shall be isolated from the aluminum body extrusions by 5/16” x 2” fiber reinforced rubber.

The frame extension shall be built with (2) 2.5” sq. x .25 wall thickness x full width cross rails welded to (2) 2.5” sq. x .25 wall thickness side rails. The frame extension assembly will be welded to steel weldments, which are secured to the chassis frame with grade 8 5/8” bolts.

The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4” x 3-1/2” x 3/8”

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.61 cu. in.

Resistance to Bending Moment (RBM): 1,827,045 in. lbs.

If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4” dimension by more than 1/2” in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration. The cross-members shall be attached to the frame rails with not less than four (4) bolts at each end arranged in a bolt pattern to adequately distribute the cross-member load into the rail/liner and minimize stress concentrations.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame rails shall be hot dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be

tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

Front Axle

The vehicle shall utilize a Meritor FL-941 front axle with a rated capacity of 20,000 lbs. It shall have “easy steer” knuckle pin bushings and 68.5” kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10-hole hub-piloted wheels in order to improve wheel centering and extend tire life.

Front springs shall be parabolic tapered, minimum 4” wide x 54” long (flat), minimum 3 leaf, progressive rate with a capacity of 20,000 lbs. at the ground. The springs shall have Berlin style eyes and rubber bushings on each end with an additional standard wrap at the front eye. Tapered leaf springs provide a 20% ride improvement over standard straight spring systems.

The vehicle shall be equipped with a Sheppard model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 20,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

In order to achieve maximum vehicle road performance and to promote long tire life, there shall be a wheel alignment. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

Shock Absorbers Front

Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable.

The shocks shall be covered by the manufacturer`s standard warranty.

Front Axle Sight Glass

The front axle shall have a Stemco sight glass on the hubs to check the lubricant level of the axle spindles.

The inboard wheel seals shall be Chicago Rawhide brand (or equivalent).

Rear Axle

The vehicle shall be equipped with a Meritor RS-25-160 single rear axle with single-reduction hypoid gearing and a manufacturer`s rated capacity of 27,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals.

The rear axle hubs shall be made from ductile iron and shall be designed for use with 10-hole hub-piloted wheels to improve wheel centering and extend tire life.

Driver Controlled Differential

A Rockwell driver controlled main differential lock shall be supplied. Operated from within the cab, it reduces wheel spinouts by transferring power from the slipping wheel to the wheel with traction. An indicator shall be provided visible to the driver to show when the lock is engaged.

Rear Suspension

The rear suspension shall be a pair of linear-rate leaf springs with auxiliary “helper” leaf springs. The variable-rate springs with auxiliary springs ensure that the vehicle rides and handles smoothly under both loaded and unloaded conditions.

The suspension system shall have maintenance free rubber bushings at the forward end of the springs. The spring bushings shall have bar pin style mounting that allows for 4-wheel alignment.

The suspension shall be rated for the maximum axle capacity.

Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless-steel baby moons shall carry a lifetime warranty plus a 2-year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.

Rear Wheel Trim Package, Single Axle

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless-steel high hats shall carry a lifetime warranty plus a 2-year re-buffing policy. There shall be two (2) high hats and twenty (20) lug nut covers.

Valve Stem Extensions

Each inside rear wheel on the rear axle shall have valve extensions.

Front Wheels

The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

The wheel shall have a load rating of up to 11,000 lbs. each (up to 11,400 lb rating available with speed limited to 60 MPH)

Rear Wheels

The vehicle shall have four (4) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

Front Tires

The front tires shall be two (2) Michelin 385/65R22.5 tubeless radial tires with X MULTI HL Z highway tread.

The tires with wheels shall have the following weight capacity and speed ratings:

22,000 lbs. @ 68 MPH (steel or aluminum wheels)

Max front rating with Alcoa aluminum wheels - 23,540 @ 68 MPH (intermittent fire service rating if GAW is over 22,000)

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

Rear Tires

The rear tires shall be Michelin 12R22.5 tubeless type radial tires with XDN2 all-weather tread.

The tires with wheels shall have the following weight capacity:

27,000 lbs. (dual) @ 75 MPH

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

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Front Brakes

The front axle shall be equipped with Meritor DiscPlus EX225H 17-inch disc brakes.

The brakes shall be covered by the manufacturer`s standard warranty which is two years, unlimited mileage and parts only.

Rear Brakes

The rear axle shall be equipped with ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 24,000 lb. axle ratings and P-Type shoes with over 24,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RS-24-160 and RS-25-160 axles, and Haldex brand shall be supplied on RS-26-185 and RS-30-185 axles.

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

Brake System

The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.

The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

Tank Capacities in Cubic Inches:

Wet	Front	Rear	Total
1,738	1,738	1,738	5,214

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally sealed for protection against water, weather, and vibration.

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

The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

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

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

Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Air Dryer

The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components.

Air Inlet Auto-Eject

A Kussmaul Air Auto-Eject #091-28 airline disconnect shall be installed for the air inlet connection. The airline will automatically disconnect when the vehicle is started. A Yellow weatherproof gasketed cover, which automatically closes when the airline is ejected, shall be supplied.

The Auto-Eject shall be located outside driver's door next to handrail.

Air Lines

Air brake lines shall be constructed of color-coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

Air Horns

Dual Hadley e-tone air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

Transmission Selector

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

Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

Vehicle Speed

The maximum speed shall be electronic limited to 68 MPH as required by NFPA 1901.

Note: Maximum speed may be set at 65 MPH due to tire rating.

Engine/Transmission Package

Engine

The vehicle shall utilize a Cummins L9 engine as described below:

- 450 maximum horsepower at 2200 rpm
- 1250 lb.- ft peak torque at 1200 rpm
- Six (6) cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. (8.9 liter) displacement - 4.49 in bore x 5.69 in stroke
- 16.6:1 compression ratio
- Variable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Cummins supplied fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use on the L9 engine
- Fleetguard LF9009 Venturi Combo combination full flow/by-pass oil filter approved by Cummins for use on the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor
- Corrosion inhibitor additive for coolant system
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2021 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner shall be an 11” diameter dry type that is easily accessed for service. Air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. Air cleaner intake piping clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The engine exhaust piping shall be a minimum of 4” diameter welded stainless steel tubing. The aftertreatment system shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

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

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of “power-down” feature to meet engine installation tests.

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

A push button shift module shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after-dark operation. The shift module shall have a “Do Not Shift” light and a “Service” indicator light that are clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.

The gear ratios shall be as follows:

1 - 3.49

2 - 1.86

3 - 1.41

4 - 1.00

5 - .75

R - 5.03

The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.

The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o`clock and 8 o`clock positions for flexibility in installing pto-driven equipment.

The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.

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

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

Jacobs Engine Brake

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

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

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

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.

Engine Cooling Package

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass

shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Coolant

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

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

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

Fan/Shroud

The fan shall be 30” in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

Engine Cooler

A water-to-water type heat exchanger shall be provided to lower the chassis engine water temperature during prolonged pumping operations.

The heat exchanger shall be installed in the engine coolant system in such a manner as to allow cool pump water to circulate around engine water, thus forming a true heat exchanger action. Cooler inlet and outlet shall be continuous, preventing intermixing of engine coolant and pump water.

Fuel System

One (1) 50-gallon fuel tank shall be provided. The tank shall be of an all-welded, aluminized-steel construction with anti-surge baffles and shall conform to all applicable Federal Highway Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.

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

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50” NPT drain plug shall be provided at the bottom of the tank.

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

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

Fuel Line

All fuel lines shall be rubber.

420 Amp Alternator

There shall be a 420-amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville 4890JB series brushless type with integral rectifier and adjustable voltage regulator.

Battery System: Batteries Mounted Two (2) Left and Three (3) Right

The manufacturer shall supply five (5) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2/3) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

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

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature.

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

Drivelines

Drivelines shall have a heavy-duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

Front Tow Hooks

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

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located left side below rear of cab.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

Cab Medium (MFD)

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.

The cab shall be constructed from 3/16” (0.188”) 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load bearing, welded aluminum outer skins provide a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal “roll-cage” effect by welding two (2) 3” x 3” x 0.188” wall-thickness 6063-T5 aluminum upright extrusions between the 3” x 3” x 0.375” wall-thickness 6061-T6 roof crossbeam and the 2.25” x 3” x 0.435” wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3” x 1.5” .375 thick C-channel extrusion across the front, with 3/4” x 2-3/4” (.75” x 2.75”) full-width crossmember tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16” (0.188”) 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4” x 6-5/8” (4” x 6.625”) 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16” (0.188”) 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9” outer radius for strength and appearance. The left-hand and

right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact.

Cab Exterior

The exterior of the cab shall be 96” wide x 130” long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101” above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58”.

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

A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4” (0.25”) thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,561-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver`s seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Windshield Wipers

Two (2) opposed radial style windshield wipers with two (2) separate electric motors shall be provided for positive operation. The wipers shall be tested beyond the minimum SAE requirement to a total of 3.3 million cycles. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 20”, and the blade length approximately 21”. Each arm shall have a 90 degree sweep for full coverage of the windshield. The wipers shall be synchronized so as to wipe each windshield simultaneously.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

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

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

The entire cab shall be tilted through a 42–45-degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

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

Cab Interior

The interior of the cab shall be of the open design with an ergonomically designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23” from the floor at each side and 27” in the center section. The engine cover shall not exceed 41” in width at its widest point.

The rear portion of the forward engine cover shall be provided with a lift-up door to provide easy access for checking and filling engine oil, transmission fluid and power steering fluid without raising the cab (a separate access panel shall be provided for the power steering when equipped with an X12 or X15 engine).

The engine cover insulation shall consist of 1/2” closed cell elastomeric compound foam with aluminum foil faced fiberglass fabric manufactured to specifically fit the engine cover. All edges and seams shall be sealed using aluminum foil faced fiberglass tape. The insulation shall meet or exceed DOT standard FMVSS 302-1 and V-0 (UI subject 94 Test).

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

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

A minimum of 57.25” of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25” floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36” of seated headroom at the "H" point shall be provided over each fender well.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25” front to rear for the driver and no less than 24" side to side by up to 27” front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4” (0.25”) foam padding. The padding board shall be backed with 1/4” (0.25”) thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

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

The driver and officer seat risers shall be welded to the main cab floor structure. Depending on the make and model of the seats, a storage compartment with a hinged door shall be provided in the risers.

The lower front cab steps shall be a minimum of 11.5” deep x 24” wide. The lower rear cab steps shall be a minimum 16” deep x 21” wide. The first step at the front and rear cab doors shall be no more than 24.0” above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab interior. The intermediate step at the front doors shall be approximately 6" deep (minimum). The intermediate step at the rear doors shall be approximately 10.75" deep

(minimum). The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right-side windshield post for additional handholds.

Cab Doors

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

Front cab door openings shall be approximately 36" wide x 72.5" high, and the rear cab door openings shall be approximately 33.75" wide x 72.5" high. The front doors shall open approximately 85 degrees, and the rear doors shall open approximately 80 degrees.

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

The front door windows shall provide a minimum viewing area of 518 sq. in. each. The rear door windows shall provide a minimum viewing area of 554 sq. in. each. All windows shall have 75% light transmittance automotive safety tint.

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free material and have a black finish. Each exterior door handle shall have an integral keyed lock.

Recessed paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901. The rear cab door handles shall have a vertical orientation making them easily accessible from forward or rearward outboard seating positions. Each cab door shall have a manually operated door lock actuated from the interior of each respective door.

Cab Instruments and Controls

Cab controls shall be located on the cab instrument panel in the dashboard on the driver`s side where they are clearly visible and easily reachable. Chassis operation switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Speedometer/Odometer
- Tachometer

• Engine hour meter
• Engine oil pressure gauge with warning light and buzzer
• Engine water temperature gauge with warning light and buzzer
• Transmission oil temperature gauge
• Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
• Fuel gauge with low fuel indicator light
• Voltmeter
• Master battery/ignition switch (rocker with integral guard)
• Engine start switch (rocker)
• Heater and defroster controls with illumination
• Marker light/headlight control switch (rocker)
• Panel light dimmer switch (rocker)
• Self-canceling turn signal control with indicators
• Windshield wiper switch with variable speed and washer controls
• Pump shift control with green ”pump in gear” and ”o.k. to pump” indicator lights
• Parking brake controls with red indicator light on dash
• Automatic transmission shift console
• Electric horn button at center of steering wheel
• Master warning light switch
• Cab ajar warning indicator
• Air filter restriction indicator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Electrical System

The cab and chassis system shall have designated electrical distribution areas. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An access cover shall be provided for maintenance access to the electrical distribution area. Circuit protection shall be provided by fuses, thermal reset breakers and / or solid-state controls.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3” on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

Daytime Running Lights

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

Fast Idle System

A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs. of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed, and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs. of force **exceeding** testing requirements.

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs. of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs. of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs. of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.

Frontal Impact per SAE J2420.

Testing shall meet and/or exceed defined test using 32,549 ft-lbs. of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed, and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs. of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs. of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements to the above cab crash worthiness, **NO EXCEPTIONS**.

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

Raised Roof

The rear portion of the cab roof shall be raised 12”. This will provide at least 5` 7” standing room. The front of the vista hood shall be sloped at 45 degrees from the vertical. The slope shall begin slightly in front of the centerline of the front axle to leave room for warning lights and air conditioning in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on front, side, and rear unless otherwise specified.

The rear door shall have an 85” vertical dimension for improved ingress/egress characteristics.

Raised Roof Front Windows

The front windows of the raised roof portion of the cab shall be deleted.

Raised Roof Side Windows

The side windows of the raised roof portion of the cab ahead of the rear doors shall be deleted.

Raised Roof Rear Windows

The rear windows of the raised roof portion of the cab shall be deleted.

Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

Rear Cab Door Position

The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.

Rear door position to the 58” or (medium cab).

Cab Door Locks

The cab shall have 1250 keyed door locks provided on the exterior entry doors to secure the apparatus.

Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall be split just below the the handrail and incorporate an easily removable panel for access to the latching mechanism and window regulator for maintenance or service.

Cab Door Locks

Each cab door shall have a manually operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a keyed lock integrated with the cab door handle.

Cab Door Reflective Material

Reflexite V98 Red/Fluorescent Yellow Green striping shall be provided approximately 12" high on the lower cab door panels. The stripes shall run from the top outer corner to the bottom inside corner of the lower door area, forming an "A" shape when viewed from the rear. The reflective material shall meet NFPA 1901 requirements.

Cab Front Door Windows

Full roll-down windows shall be provided for the front cab doors with manually operated worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Rear Door Windows

Full roll-down windows shall be provided for the rear crew doors with manually operated worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Door Style

The cab doors shall extend down to cover lower step well.

Door Handles

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall have a chrome plated zinc die-cast base with corrosion free glass reinforced nylon pull handle with a black finish. The handles shall have clearance for a gloved hand.

Each exterior door handle shall have an integral keyed lock.

Cab Steps

The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area.

Cab Mirrors

There shall be two (2) Lang Mekra 300 Aero Series Technology Mirrors provided, one (1) driver`s and one (1) officer`s side. The mirrors shall be chrome-plated on the main head, be remote controlled with a four-way power system and be heated. There shall be LED marker lights with bezel on the main head, and LED arrow lights in the mirror glass. The main flat glass shall provide 120 square inches of viewable surface space.

There shall be separate heads for the driver`s and officer`s side housing convex glass and provide 56 square inches of viewing surface.

The mirrors shall be mounted on the cab doors.

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on both sides of the cab.

Window dimensions shall be as follows:

- 58": 26.69"W x 24.5"H

Front Mud Flaps

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

Handrails Driver & Officer 18”

Cab door assist handrails shall consist of two (2) 1.25” diameter x 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.

Handrails Both Back Doors of Cab with 12” Vista are 36”

Cab door assist handrails shall consist of two (2) 1.25” diameter x 36” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.

Rear Cab Wall Construction

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.

Cab Wheel Well

The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

Glass Tint

The rear of the cab shall be equipped with dark tint glass. The glass shall have 20% light transmittance (+/- 10%). The dark tint shall be provided for the following windows (as equipped):

- Window on cab sides between front and rear door
- Rear door glass
- Rear cab wall glass
- Vista roof glass

Sign Plates (3)

Removable sign plates shall be provided and located driver side of cab between front and rear doors, officer side of cab between front and rear doors and rear of the body. The plates shall be constructed of 3/16" (.187") smooth aluminum plate and painted job color.

The sign plate shall mount in a "U" shaped bracket. The plate shall be removable by the use of a finger hole located at the top of the mounting bracket.

HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area.

Air Conditioning

An overhead air-conditioner / heater system with a single radiator mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide fourteen (14) comfort discharge louvers, eight (8) to the back area of the cab, six (6) to the front area of the cab including one (1) each side outboard in the forward overhead console. These louvers will be used for both AC and heated air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery. For improved corrosion resistance the evaporator shall have a hydrophilic blue fin coating.

The control panel shall actuate the air-distribution system using electric actuators. The control panel shall allow blended airflow to both the comfort air vents and defrost vents. Separate three-speed blower switches shall be provided to independently control air speed for the front and rear blowers.

The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTUs and shall include a receiver drier.

Performance Data: (Unit only, no ducting or louvers)
• AC BTU: 55,000
• Heat BTU: 65,000
• CFM: 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu. in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

Cab Seats

All cab seats shall be Bostrom brand.

Seat, Rear Facing

Two (2) Bostrom 400 Series tanker 450 SCBA high back SCBA storage seat shall be provided in the rear facing position over the wheel well.

Features shall include:

• Removable “Store-All” side cushions.
• Auto-pivot and return headrest to open for improved exit with SCBA.
• 12.5” wide SCBA cavity to store leading SCBA Brands.
• Built in lumbar support.
• Replaceable seat, side and headrest cushions.

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

Seat Cover Material

All seats shall have Durawear seat cover material.

Seat Fabric Color

All seats shall be gray in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of five (5) personnel shall be provided.

Seats, Rear Wall (2)

Two (2) Bostrom SCBA flip up style seats with a single cushion shall be mounted on the rear wall of the cab.

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

Bostrom SecureAll Locking System (5)

The H.O. Bostrom SecureAll™ SCBA Locking System shall be one bracket model and store all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks. The bracket shall be easily adjustable; all adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Firefighters shall simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ bracket shall fit in all H.O. Bostrom Tanker SCBA seats including ABTS and non-ABTS seats and all flip up ABTS and non-ABTS seats. Additional seat depth shall not be required for proper bracket fit; changes to the shroud back shall not be required for proper mounting of the bracket.

The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The H.O. Bostrom SecureAll™ system meets NFPA 1901 standards and requirements of EN 1846-2.

The brackets shall be located officer's seat, rear facing driver's side and two (2) flip up SCBA seats on the back wall.

Seat, Driver

One (1) H. O. Bostrom Sierra air suspension seat with high back styling shall be supplied for the driver position.

Features shall include:

- Internally tethered Air-50 suspension assembly with weight, height and ride adjustment
- Fixed lumbar support
- 5” fore and aft adjustment
- Reclining seat back

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

Seat, Officer

One (1) H. O. Bostrom 400 Series fixed SCBA seat shall be supplied for the officer`s position.

Features shall include:

- Generation II styling
- 12.5” wide SCBA cavity to store leading SCBA brands
- Adjustable depth SCBA cavity
- Auto-pivot and return headrest to open for improved exit with SCBA
- Removable “Store-All” side cushions
- Built in lumbar support
- Replaceable seat, side and headrest cushions

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

Cab Interior Padding Color

Cab interior padding to be gray color. Includes ceiling, side and rear walls as applicable.

Sun Visors

Padded sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.

Air Horn Lanyard

There shall be a “Y” style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb./cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Overhead Console

An overhead console shall be provided in the front of the cab for the driver and officer. The areas in front of the driver and officer shall be removable panels that can be used for switches and other electrical items. The entire overhead console shall be hinged for service access.

The center of the overhead console shall have a lowered area for mounting of up to three (3) electrical components like siren heads, directional bar controllers, etc.

The overhead console shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

Rear Engine Cover

The rear engine cover shall be provided with a reduced profile for increased legroom on the forward-facing rear inboard seats.

Cab Dash - Low Profile Severe Duty

The driver side and center dash shall be constructed from cast aluminum for durability and long life.

The driver side cast aluminum dash shall enclose the instrument cluster.

The center dash area shall be a low-profile design to provide optimal forward visibility. The driver and officer sides shall be angled for ergonomic access and designed for either a color display or switches. Access panels shall be provided on the top, front and officer side for easy service access.

The officer side dash shall be low profile and constructed from .125" smooth aluminum plate. A service access panel shall be provided in the top surface.

The driver, center and officer side dash shall be painted to match the cab interior.

The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Cab Insulation Package

The cab shall be insulated to mitigate noise and ensure maximum cooling/heating capacity. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, Reflectex (or equal) inside each cab door and 1" closed cell foam insulation below the front and rear facing seat risers.

Cup Holder / Storage Tray Enlarged

An enlarged cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 19" wide x 12" long x 1.5" tall and constructed from .125" aluminum plate. The top edge of the tray sides shall have a .5" lip and the front corners of the tray shall be tapered for dash access. The two (2) cup holders shall be constructed from 3.5" diameter pipe approximately 2.5" tall and be located one each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Cab Dome Lights (4)

A Weldon LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be a Kussmaul 20-amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail and the cover color shall be Yellow.

Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

ATC Override

An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions.

English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

This panel shall be backlit for increased visibility during day and nighttime operations.

LED Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be daytime operational.

12 Volt Outlets (3)

A plug-in type of receptacle for handheld spotlights, cell phones, chargers, etc. shall be installed in cab driver side on 3 x 3 post rear facing just above engine cover, driver side dash, officer side dash. The receptacles shall be wired battery hot.

Antenna Base

There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side forward with coaxial cable terminating at the center of the dashboard.

Battery Charger Location

The battery charger shall be located behind driver's seat.

Battery Charger

A LPC 40 battery charger with remote mounted LED display shall be installed.

A fully automatic charging system shall be installed on the apparatus. The system shall have a 120-volt, 60 hertz, 7-amp AC input with an output of 40 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.

The system shall include a remote charging status indicator panel. The panel shall consist of two (2) LED lights to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

Cab Headlights

FireTech model FT-4x6-4KIT LED headlights shall be provided. Headlights shall include low beam, high beam, elliptical beam and an integrated halo ring park lamp.

Cab Doorstep Area Lighting

There shall be eight (8) clear TecNiq model D07 LED lights provided to illuminate the cab step well areas. Two (2) lights shall be located at each door area, one (1) above each step. The lights shall have polished stainless-steel housings. The lights shall be activated by the cab door ajar circuit.

Cab Turn Signals

A pair of TecNiq LED (Light Emitting Diode) turn signal lights with clear lens shall be installed on the front of the cab. The strip type lights shall be 1.25" high x 15" long and be mounted in a polished cast aluminum housing between the quad bezels.

Cab Dual USB Charger Sockets (6)

Six (6) Kussmaul model 091-264-N, dual port outlet. Includes (1) USB-C and (1) USB-A NGR charger sockets for cell phones, chargers, etc. shall be installed two (2) in cab driver side

on 3 x 3 post rear facing just above engine cover, two (2) driver side dash and two (2) officer side dash. The receptacles shall be wired battery hot.

USB Dual Port 091-264-N Specifications:

Input: 10 To 30 VDC (10 To 32 VDC Absolute Min./Max.

Output:4.8 to 5.2 VDC, 4.8 Amps Max

Indicator: Device Powered: Blue LED

Driver Side Assembly

The driver side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The driver side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Driver Side Compartments

The three (3) driver side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 57" high section and 12" deep in the upper 11" high section. The compartment shall contain approximately 39.2 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 68" high.

There shall be one (1) compartment located over the rear wheel. This compartment shall be approximately 56" wide x 34" high x 26" deep in the lower 23" high section and 12" deep in the upper 11" high section and contain approximately 23.6 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56" wide x 68" high. The forward area of the compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 57" high section and 12" deep in the upper 11" high section. The enhanced extended rear portion of the compartment shall be approximately 14"

wide x 68” high x 24” deep in the lower 57” high section and 11” deep in the upper 38” high section. The total combined storage space shall be approximately 51.7 cu. ft. The door opening shall be approximately 56” wide x 68” high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally mounted compartment top shall be provided and constructed of a 1/8” (.125”) aluminum treadplate.

Driver Side Roof Top Compartments

Two (2) driver side roof compartments shall be provided. The compartments shall be integral to the driver side assembly.

The compartments shall be transverse front to rear and shall include flooring. The flooring shall be smooth plate and shall have drain holes to prevent the accumulation of water.

The compartment top lids shall be raised and constructed of 1/8” (.125”) aluminum treadplate. The lids shall include stainless steel hinges and shall be hinged to the outside of the compartment. Each lid shall include turn latches, grab handle(s) and be wired to the door ajar indicator in the cab.

Hansen LED strip lighting shall be provided for each compartment. The lights shall illuminate when the compartment lid is in the open position.

Officer Side Assembly

The officer side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The officer side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16” (0.188”) wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16” (0.188”) wall thickness and 3/16” (0.188”) outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The officer side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Officer Side Compartments

The three (3) officer side compartments shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheel. The compartment shall be approximately 42” wide x 68” high x 26” deep in the lower 30” high section and 12” deep in the upper 38” high section. The compartment shall contain approximately 30 cu. ft. of combined storage space. The door opening shall be approximately 42” wide x 68” high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56” wide x 34” high x 12” deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56” wide x 34” high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56” wide x 68” high. The forward area of the compartment shall be 42” wide x 30” high x 26” deep in the lower area and 42” wide x 38” high x 12” deep in the upper area. The enhanced extended rear portion of the compartment shall be approximately 14” wide x 68” high x 24” deep in the lower 30” high section and 11” deep in the upper 38” high section. The total combined storage space shall be approximately 39.5 cu. ft. The door opening shall be approximately 56” wide x 68” high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally mounted compartment top shall be provided and constructed of a 1/8” (.125”) aluminum treadplate.

Storage Tunnel

The area directly behind the upper area of the officer side compartments shall be for the storage of NFPA equipment.

Officer Side Roof Top Compartments

Two (2) officer side roof compartments shall be provided. The compartments shall be integral to the officer side assembly.

The compartments shall be transverse front to rear and shall include flooring. The flooring shall be smooth plate and shall have drain holes to prevent the accumulation of water.

The compartment top lids shall be raised and constructed of 1/8” (.125”) aluminum treadplate. The lids shall include stainless steel hinges and shall be hinged to the outside of the compartment. Each lid shall include turn latches, grab handle(s) and be wired to the door ajar indicator in the cab.

Hansen LED strip lighting shall be provided for each compartment. The lights shall illuminate when the compartment lid is in the open position.

Rear Body Assembly

The rear body shall be constructed entirely of aluminum extrusions and interlocking aluminum plates and includes a full height center rear compartment.

The rear body frame shall be 6063-T5 1.5” x 4” and 1.5” x 3” aluminum extrusions with a 3/16” (0.188”) wall thickness and 3/16” (0.187”) outside corner radius and 1/8” (0.125”) aluminum smooth plate. The rear extrusions shall be welded both internal and external at each joint using an aluminum alloy welding wire.

Rear Body Compartment

The full height center rear compartment shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartment shall be modular in design and shall not be a part of the body support structure.

The compartment shall be approximately 38” wide and shall vary in height and depth dependent upon water tank capacity.

The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Storage Compartments

A storage compartment shall be provided at the rear body compartment. The storage compartment shall be located to the officer side of the rear compartment.

The storage compartment shall be approximately 13” wide x 29” high x length of side assembly. The storage compartment shall store NFPA equipment.

The storage compartment shall include a vertical hinged door to secure contents. The door shall be constructed of 3/16” (.187”) aluminum smooth plate and shall have a push-button style latch. The compartment door shall be securely attached with a full-length stainless steel piano type hinge with 1/4” pin (outboard standard design, inboard when rear body includes beaver tail). The hinge shall be “staked” on every other knuckle to prevent the pins from sliding. The door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 15.5" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with

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

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Enhanced Extended Compartment Framework

Each side of the tailboard shall be the external compartment framework of the enhanced extended side compartments. The compartment framework shall be 6063-T5 1.5"x 4"and 1.5" x 3" aluminum extrusions with a 3/16"(0.188") wall thickness and 3/16" (0.188") outside corner radius. The rear extrusions shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hose bed area. Each handrail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertical on the trailing edge of the body and appropriately sized handrail(s) mounted horizontal below the rear hose bed opening.

Enhanced Extended

Enhanced Extended Compartmentation stepped down below hose bed level. Includes embossed diamond plate compartment tops.

Roll Up Compartment Doors (7)

A ROM brand roll up door with satin finish shall be provided on all seven (7) compartment doors. The doors shall be installed in the following locations: L1, L2, L3, R1, R2, R3, B1.

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

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

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

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

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

Drip Pans (7)

Drip pans for all seven (7) roll-up doors

Strap for Roll-Up Doors (7)

A bungee type strap shall be provided on the roll-up doors to assist in closing the door. The strap shall be affixed to both the door and the interior, so the strap stays inside the compartment when lowering. The strap shall be provided on full height and high side (upper) compartments.

Permanent Shelves (2)

There shall be a permanent mounted shelf provided for a compartment as specified. The shelf shall be at the offset (unless otherwise specified) within the compartment.

The shelf shall have a minimum 2” front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems.

The shelf shall be capable of holding 100 lbs.

Aluminum bodies: Material to be 3/16" (.188") thick aluminum smooth plate.

Stainless steel bodies: 12 ga smooth plate 304L stainless steel.

Adjustable Shelves (6) Exact Locations to be Determined at Pre-Construction

There shall be an aluminum adjustable shelf provided for a compartment as specified.

The shelf shall be constructed of 3/16” (.187”) smooth aluminum plate. The shelf shall have a minimum 2” front and rear lips to accommodate optional plastic interlocking compartment tile systems and shall be capable of holding 100 lbs. on compartments with tracks mounted on back wall (compartments up to approximately 12" deep) or shall be capable of holding 250 lbs. with tracks mounted on forward and rearward walls.

The shelf shall be sized, width and depth, to match the size and location in the compartment.

Adjustable Tracks (6) Exact Locations to be Determined at Pre-Construction

Tracks shall be provided in the compartment as specified for use with adjustable shelves and/or trays in non-transverse compartments. The tracks shall be vertical mounted and attached to the side and/or rear walls of the compartments.

Roll-Out Trays (2) Exact Location to be Determined at Pre-Construction

There shall be a floor mounted roll-out trays provided in a compartment as specified.

The roll-out tray shall be constructed of 3/16” (.187”) smooth aluminum plate with a sanded finish and welded corners for increased strength and rigidity. The tray shall be sized in width and depth as applicable.

For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas spring to secure the tray in the open or closed position.

The tray shall have a total capacity of 500 lbs.

Swing-Out Tool Board: L2

A Pac Trac swing out aluminum tool boards shall be provided for a compartment as specified.

- The swing out tool board provides two mounting surfaces by utilizing PAC Double Face Dual Trac aluminum extrusion.
- This product is sold as a combination of P/N PM-1000, Pivot Mount Assembly and PAC Double Face Dual Trac aluminum extrusion P/N 7040. The amount and size of the aluminum extrusion is determined by the compartment size and/or the customer requirements. Board heights are in 5-3/4" increments.
- Compatible with all PAC tool brackets.
- Locks in closed and open positions for stability.
- Flexible mounting. Left- or right-hand opening.

The tool board shall be mounted hinged to the front of the compartment (unless otherwise stated in location).

Tool board shall be rated to support up to 100 lbs.

Tool Board PAC TRAC (2) Located in L3

Two (2) Tool Board, Pac TRAC brand double sided adjustable slide out tool boards on slide model VSOHD-24 shall be provided in a compartment as specified, L3.

- The Vertical Slide Out P/N VSOHD-24 is a double-sided full extension slide out mounting product. 24 inches of travel.
- Equipment mounting on both sides of panel.
- Compatible with all PAC tool brackets.
- 250lb capacity.

- Locks in closed and open positions for stability.

  The tool board shall be mounted at top and bottom on adjustable tracking for ease of placement.

  The capacity rating shall be 250 lbs. maximum at full extension.

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed.

Rear Hose Bed Cover

A cover constructed of heavy-duty black nylon cargo netting shall be installed at the rear apparatus hose bed.

The bottom of the cargo netting shall be mechanically attached to the hose bed. The cover shall be attached to comply with the latest edition of NFPA 1901.

Cover shall secure the hose load at the rear open back of the hose bed and shall compliment separate top cover of vinyl, diamond plate pr similar cover that secures top of body open areas over hose load.

Crosslay Cover - Sides

A pair of covers constructed of heavy-duty black nylon cargo netting shall be installed over the side openings of the apparatus crosslay.

The covers shall be secured in place to comply with the latest edition of NFPA 1901.

Ladder Cover

A vinyl cover shall be provided in the pump area to protect the ladders from the pump area. The cover shall be removable for access to the pump area and the cover shall be black.

Pump Module Width

Pump module shall be 76" wide.

Pump Module

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and interlocking aluminum plates. The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.

The exterior surface of the pump module framework shall have a sanded finish.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access door shall be provided at the front of the pump module. The door shall be secured with two (2) thumb latches. (Access door not provided on fixed cab applications)

Pump Module Running Boards

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .125" aluminum treadplate.

Stepping Surface

Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125". Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Pump Panel Opening

The panel opening on the pump module shall be 51" wide.

Pump Module Height

The pump module height shall be 80".

Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14-gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Hinged Gauge Panel

The driver side upper gauge panel(s) shall be hinged to provide access to panel mounted electrical connections.

The gauge panel(s) shall be hinged to open upward with a full-length stainless steel piano type hinge with 1/4” pins. The hinge shall be “staked” on every other knuckle to prevent the pin from sliding.

The gauge panel(s) shall include latches to secure the panel in the closed position and two (2) mechanical/pneumatic (as applicable with the panel size) hold-opens for the open position.

Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4” pins along the forward edge of the pump module. The hinges shall be “staked” on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

Hose Reel Blow-Out Valve

A 1/4" Innovative Controls valve shall be installed between the chassis air system and the hose reel. This valve shall be mounted at the pump operator area. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag There shall be a check valve in the air line to prevent water from entering the chassis air system.

Booster Reel Rollers

A booster reel roller assembly shall be provided.

The roller assembly shall include chrome guides with nylon bushings and shall be mounted on the side next to the booster reel.

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Module Logos

Logos with the OEM brand name shall be provided and shall be mounted one (1) each side on pump module/pre-connect panels. Logos shall be sized as applicable to available space on panel(s).

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

The switch shall be labeled “Evacuation Alert”.

Location: driver side pump panel.

Booster Reel Riser

Booster Reel Riser for rollers. Locate with driver side dunnage pan rollers.

Storage Pan

A storage pan shall be provided in the upper pump module area. The pan shall be constructed of 3/16” (.188”) aluminum treadplate and be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

Two (2) Crosslay Hose beds

Two (2) crosslay hose beds shall be provided on the pump module. Each of the two (2) crosslay areas shall have a capacity for up to 200` of 2.0” double-jacket fire hose double stacked. The crosslay floor and side walls shall be constructed of 3/16” (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4” (.25”) smooth aluminum plate fixed divider with a sanded finish shall be provided to separate the two (2) hose storage areas.

1030 Gallon Water Tank

A 1030 gallon (US) “R” booster tank shall be supplied. The booster tank shall be of a pinned baffle design. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure.

The booster tank top, sides, and bottom shall be constructed of 1/2” (0.50”) black UV-stabilized copolymer polypropylene. The copolymer polypropylene tank material shall be welded together utilizing thermoplastic welding technology. A clean hot air temperature-controlled process shall ensure that each weld reaches its plasticized state without cold or hot spots. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The booster tank shall have a fill tower with a rearward hinged lid. The fill tower shall be located in the forward area of the tank and shall assist with tank ventilation. The fill tower shall include a removable 1/4” (0.25”) thick polypropylene screen.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. A 3” cleanout plug shall be provided at the bottom of the tank sump.

The booster tank shall include longitudinal and latitudinal baffles. The baffles shall be interlocking and thermo welded to the shell of the tank to minimize water surge during travel and provide enhanced road handling stability. The baffle design shall allow waterflow in accordance with NFPA during tank filling or pump operations.

A 2.5’ length of black flex hose shall be installed to the bottom of the tank. This shall direct the draining of overflow water past the rear axle and fuel tank, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. The testing shall include an electronic spark and tank fill test after both the internal and external tank shell welds are completed.

A lifetime manufacture`s limited warranty shall be included.

Tank capacity is 1030 US gallon / 857 Imperial gallons / 3898 Liters.

Fill Tower Location

Fill tower shall be located offset to officer side of water tank.

Tank Fill, 2.5 Akron Valve

One (1) 2.5” pump-to-tank fill line having a manually operated 2.5” Akron valve. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. The valve shall be controlled with a chrome handle.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank To Pump

One (1) manually operated 3” Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Alco-Lite.

Pike Poles (2) Bulloch County Supplied

The pike poles capable of being stored shall be the following length: (2) 10' pike poles.

Ladders: Bulloch County Supplied

The length of ladders capable of being stored shall be the following: 24' 2-section, 14' roof ladder and 10' attic ladder w/shoes.

Storage Tunnel Contents

Storage tunnel capable of holding (1) 2-section, (1) roof, (1) attic, (2) pike poles, (1) backboard in Officer.

Hose bed Style Top

The top of the storage area shall be constructed entirely from maintenance-free, 3/4” deep x 7.5” wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose. If applicable, the hose bed style top design shall incorporate adjustable tracks in the forward and rearward area for installation of adjustable divider(s).

Hose bed Storage Contents

Hose bed storage area shall be capable of storing (2) 6" x 10' hard suction hoses

Hose bed Storage

Storage shall be provided in the hose bed area. The top of the storage will remain open. Based on the storage contents, the flooring of the storage area shall have a surface that shall allow easy removal and loading of the contents. Stop(s) shall be provided as required to prevent the contents from sliding forward. Storage area shall have diamond plate door with D-Ring latch(s).

Hose Bed Folding Steps (6)

Innovative Controls dual lighted LED folding steps shall be positioned three (3) to the driver side rear of the body and three (3) to the officer side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr. salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) handrail shall be installed each side in compliance with current NFPA. The handrail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Folding Steps (8)

Innovative Controls dual lighted LED folding steps shall be located four (4) officer side front compartment face and four (4) driver side front compartment face. The folding steps shall meet current NFPA in step height and surface area.

Innovative Controls dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb. with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr. salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) handrail shall be installed each side in compliance with current NFPA. The handrail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Mud Flaps

Black mud flaps shall be provided for the body wheel wells.

Body Height and Mainframe Construction

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

The body mainframe shall include 3” x 3” 6061-T6 aluminum 3/8” (0.375”) wall cross member extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body. A solid 3” x 3” “I-beam” section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The cross members shall be designed to support the compartment framing and shall be welded to 1-3/16” x 3” (1.188” x 3”) solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16” x 2” (0.31” x 2”) fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8” (0.625”) diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3” x 3” frame

assembly covered with rubber shock pads and corner braces formed from 3/16” angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5” of the frame rail top.

Hose Bed Side Assembly

The hose bed side assemblies shall be made of 3” x 3” slotted aluminum extrusion and 3/16” (.188”) smooth plate. The hose bed side assemblies shall provide a 90” high body.

The exterior hose bed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hose bed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Hose Bed

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4” deep x 7.5” wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed design shall incorporate adjustable tracks in the forward area and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Hose Bed Dividers (2)

Two (2) hose bed dividers provided the full fore-aft length of the hose bed.

The hose bed dividers shall be constructed of 1/4” (0.25”) smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3” radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Hose Bed Divider Hand Holds (2)

There shall be a hand hole cut-out on the trailing edge of each hose bed divider. The cut-outs are specifically sized for use in adjusting of the hose bed divider.

Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area.

Rub Rail

The pump area module(s) and body shall have rub rails mounted along the sides and at the rear.

The rub rail shall be C-channel in design and constructed of 3/16” thick 6463T6 anodized aluminum extrusion. The rub rail shall be 2.75” high x 1.25” deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1” in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16” off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

Anodize Aluminum Trim

A anodize aluminum trim shall be located at the bottom edge of all body compartment openings including pump enclosure with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.

Body Wheel Well

The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 1/8” (0.125”) aluminum tread plate. The wheel well trim shall be constructed from 6063-T5 formed aluminum extrusion.

The fenderettes shall be bolt-on and shall be easily removable. The fenderette shall be constructed from .080" aluminum with a mirror finish. The fenderette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius. A "P" shaped rubber gasket shall be provided between the fenderette and wheel well body panel.

The wheel well liners shall be constructed of a 3/16” (.187”) composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

SCBA Straps (10)

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

SCBA 1 BOTTLE STORAGE, Drivers Side Rear

Designed (1) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located in the wheel well adjacent to the SCBA storage.

U-shaped trough made out of aluminum smooth plate with rubber insert shall be provided to store SCBA bottles.

Location: driver side rear wheel well offset rearward

SCBA 3 BOTTLE STORAGE (9)

Designed (9) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubber inserts shall be provided to store standard size SCBA bottles up to 6.75" in diameter and 24.5" in length. The upper two troughs can also store a standard size 20lbs ABC Extinguisher or 2.5-gal Water Extinguisher in each trough.

Location: 3 driver side rear wheel well offset forward, 3 officer side rear wheel well offset forward and 3 officer side rear wheel well offset rearward

Pump Rating

The fire pump shall be rated at 1500 GPM.

Fire Pump System

The pump shall be a midship-mounted Hale QMAX single stage centrifugal pump. The pump shall be mounted on the chassis frame rails of commercial or custom truck chassis and have the capacity of 1,250 to 2,250 gallons per minute (U.S. GPM) NFPA 1901 rated performance and shall be split shaft driven from the truck transmission.

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high-quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for

easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Gearbox – G Gearbox

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.) The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump. For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operators panel adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.

Discharge Manifold

The pump system shall utilize a stainless-steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Pump Shift

The pump shift shall be pneumatically controlled using a power shifting cylinder.

The power shift control valve shall be mounted in the cab and be labeled “PUMP SHIFT”. The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

A green indicator light shall be located in the cab and be labeled “PUMP ENGAGED”. The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled “OK TO PUMP”. This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

Test Ports (2)

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Gearbox Cooler

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

Pump Certification: 1500 GPM

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer`s Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

Speed Counter

The test connection shall be installed on the pump panel to manually verify the vehicle engine speed displayed on the electronic tachometer.

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1” from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.)

Location: driver's side, officer's side.

Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side, and one will be located on the discharge side of the pump.

Mechanical Pump Seal

The midship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 psi.

The mechanical seal assembly shall be 2 inches in diameter and consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided.

Only one mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one-piece pump shaft (no exceptions). A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Pump Cooler

The pump shall have a 3/8” line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator`s panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag.

Auxiliary Engine Cooler Control

The auxiliary engine cooler shall be controlled from the pump operator`s panel by an Innovative Controls 1/4 turn valve with "T" handle. The 1/4 turn handle grip shall feature built-in color-coding label and a verbiage tag.

1/2” lines shall be installed from the pump discharge via the valve to the cooler and back to the pump intake to allow a small amount of water to circulate through the engine cooler.

Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless-steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with ¾” NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal “venturi nozzles” within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

The primer control shall have a manually operated, panel mounted “push to prime” air valve. The valve shall 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.

Warranty

The primer shall be covered by a five (5) year parts warranty.

2.5” Intakes with 2.5 Akron Valves (2)

Two (2) (2) 2-1/2” suction inlets with a manually operated 2-1/2” Akron valves shall be provided, one left side pump panel and one right side pump panel.

The valves shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2” NST female chrome inlet swivel, and shall be equipped with a chrome plated rocker lug plug with a retainer device.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4” bleeder valve assembly will be installed on each side pump panel.

Intake Relief Valve

The pump shall be equipped with an Akron style 59 cast brass, variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 250 PSI. The relief valve shall be normally closed and shall be set to begin opening at 125 PSI in

order to limit intake pressures in the pumping system. When the relief valve opens, the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2” NST threaded fitting to allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.

Left Front 2.5 Hose Bed Akron Valve

One (1) 2-1/2” preconnect outlet with a manually operated Akron valve shall be supplied to the lower left of the apparatus hose bed. The preconnect shall consist of a 2-1/2” heavy-duty hose coming from the pump discharge manifold to a 2-1/2” adapter.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Deck Gun 3" Discharge Akron Valve

One (1) 3” deck gun discharge outlet with a manually operated Akron valve and 3” stainless steel pipe shall be provided above the pump compartment.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Discharge 1.5 Front Bumper Akron Manual

One (1) 1-1/2” preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2” heavy duty hose coming from the pump discharge manifold to a 1-1/2” mechanical swivel hose connection to permit the use of the hose from either side of the apparatus and located above the bumper area located on top of the gravel shield.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The discharge shall be supplied with a 3/4” bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator`s panel.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper officer's side outboard.

1.5 Crosslay Akron Valves (2)

Two (2) crosslay discharges shall be provided at the front area of the body. The crosslays shall include one (1) 2” brass swivel with a 1-1/2” hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2” heavy-duty hose coming from the pump discharge manifold to the 2” swivel. The hose shall be connected to a manually operated 2” Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats

for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

Two (2) Left Panel 2.5 Discharge Akron Valves (2)

Two (2) 2-1/2” discharge outlets with a manually operated Akron valves shall be provided at the left-hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

Right Panel 2.5 Discharge Akron Valve

One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the right-side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 2.

Right Panel 3 Discharge Akron Valve

One (1) 3” discharge outlet with a manually operated Akron valve shall be provided at the right-side pump panel.

The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 1.

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

Extend-A-Gun

A Task Force Tips 18” Extend-A-Gun piping shall be supplied for the deck gun discharge to allow for raising and lowering the deck gun monitor.

The Extend-A-Gun shall include a raised monitor sensor connected to the door ajar light.

Monitor, Customer Installed

Customer installed monitor, make and model as specified.

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Bleeder Drain Valves (9)

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

Booster Hose Reel

A Hannay booster reel shall be provided and located dunnage pan offset to driver side.

The booster reel shall be constructed utilizing an all-aluminum welded base. Reel bushings shall be manufactured from Nylatron to ensure maintenance free operation. A 12-volt electrical motor shall be provided and will rewind the reel with a chain and sprocket drive mechanism. All electrical switch connections shall be coated to protect against moisture. The booster reel shall have a capacity for up to 200` of 1" booster hose.

Plumbing to the reel shall be a 1-1/2" flexible line with the discharge control located at the operator`s control panel.

All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines.

FRC PumpBoss Pressure Governor

Fire Research PumpBoss Max series PBA500-A00 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 module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. 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 3 mm 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 or engine specific signal wiring. 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.

2.5 Line Gauges (9)

The valve discharge gauges shall be 2 ½" (63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless-steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from –40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless-steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

4" Master Pressure Gauges w/Bezel

The master intake and master discharge gauges shall be 4" (101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless-steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from –40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no

more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30” vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

GAUGE IC 10 LED TANK LEVEL WATER/PS2TANK

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180-degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System calibration shall be accomplished via supplied magnet. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an “anti-slosh” feature.

In addition to the pump panel mounted lights there shall be one (1) Whelen PSTank2 series LED (Light Emitting Diode) strip light installed each side as specified.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

The remote strip light shall be arranged as follows:

Full Green
3/4 Blue
1/2 Amber
1/4 Red

Location of Whelen PSTank2 Strip Lights: each side of cab rear of front doors.

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12-volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current 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.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper, or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082" plus or minus .01". The imprinted characters shall repeat at a distance not greater than 3".

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04" and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation

per requirements of NFPA 1901. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer`s governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts DC for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

A. Documentation of the electrical system performance tests required above.

B. A written load analysis, including:

a. The nameplate rating of the alternator.
b. The alternator rating under the conditions.
c. Each specified component loads.
d. Individual intermittent loads.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24-hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released, and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

Multiplex Display

The V-MUX multiplex electrical system shall include a Vista IV color display.

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7”

- Master warning switch
- Engine high idle switch
- Five (5) tactile switches to access secondary menus
- Eight (8) multi-function programmable tactile switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

The display shall be located driver's side engine cover.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental condition’s apparatus are commonly exposed to.

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

Front Light Bar Colors

The front light bar shall be provided with the following color LED modules: RED with CLEAR lenses

If applicable, includes side facing light bars when colors are the same.

Light Bar

A Whelen Freedom IV Series 72” LED light bar model F4X7 with ten (10) LED modules shall be provided; two (2) front corner mounted LED modules, six (6) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

Upper Rear Warning Lights (2)

Two (2) Whelen model L31H Super LED beacons with Red domes shall be supplied.

The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

Warning Lights (2)

Two (2) Whelen ION-T Series model TLI Super LED light heads shall be provided. The lights shall be RED with CLEAR lenses. The lights shall include chrome flanges where applicable.

Location: (1) each side NFPA/ULC required lower zone rear side facing.

Warning Lights (8)

Eight (8) Whelen 600 series Super LED light heads shall be provided, two front of cab, two rear of body, two bumper extension one each side, two over rear wheels, one each side. The lights shall be RED with RED lenses. The rectangular lights shall include chrome flanges where applicable.

Electronic Siren

A Federal PA300 siren model 690010 solid state electronic siren with attached noise-canceling microphone shall be installed. The unit shall be capable of driving a single high-power speaker up to 200 watts to achieve a sound output level that meets Class "A" requirements.

Operating modes shall include Hi-Lo, yelp, wail, P.A., air horn and radio re-broadcast.

The siren shall be recessed mounted in the cab.

Electronic Siren Control Location

The electronic siren control shall be located in the center overhead console offset to driver side.

Mechanical Siren

A chrome plated Q2B siren shall be mounted in the notch of the front bumper driver's side. An electric siren brake switch shall be located in the cab accessible to driver.

The siren shall be located notched on the driver side front bumper.

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 MSFMT with "E-ONE" grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs.

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 officer side front bumper.

License Plate Light

One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

LED Marker Lights

LED clearance/marker lights shall be installed as specified.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:

- One (1) red Trucklite LED clearance light each side, rear of body to the side.

Lower Body:

- Three (3) red Trucklite LED clearance lights centered at rear, recessed in the rub rail.
- One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rub rail.

- One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rub rail.

Tail Lights

Three (3) Whelen 600 series LED (Light Emitting Diode) lights shall be installed in a chrome ABS housing in a vertical position, each side at the rear of the body and wired with weatherproof connectors.

Light functions shall be as follows:

• One (1) model 604BTT LED red running light with red brake light in upper position.
• One (1) mocel 604T LED amber turn signal in middle position.
• One (1) model 604BU LED clear back-up light in lower position.

A one-piece chrome ABS trim housing shall be mounted around the three (3) individual lights in a vertical position.

License Plate Bracket

There shall be bracket fabricated from aluminum smooth plate sanded, secured to rear of the body to accommodate a license plate.

Turn Signal Flash Pattern

The forward (if applicable) and rear turn signals shall have a populated full light flash pattern.

Compartment Light Package (14 Total)

Two (2) Hansen compartment light strips shall be mounted in each body compartment.

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug-in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights

shall be 4” circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug-in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Crosslay Light

A Whelen LED light model PFBP12C shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The crosslay light shall be switched with work light switch in the cab.

Hose Bed Light

A Whelen LED light model PFBP12C shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The hose bed light shall be switched with work light switch in the cab.

Scene Lights (6)

Six (6) Whelen model 60C0ENZR 600 series Super LED clear scene lights shall be provided.

Each shall have 12 Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light from 8 - 32 degrees.

Lights shall be located (1) each side of cab between doors, one each side of upper body forward and one each side of upper body rearward.

Scene Lights (2)

Two (2) Whelen 600 series model 60C0ENZR Super LED Scenelights shall be provided.

Each light head shall contain twelve (12) diodes. The lights heads shall be equipped with lenses that have gradient optics to enhance light output.

Lights shall be located (1) each side rear compartment face up high and switched in cab (side facing lights switched separately).

Engine Compartment Light

There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area. The light wiring circuit shall activate when the cab is tilted, and master power is switched on.

Pump Compartment Light

An incandescent light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Door Ajar Alarm

An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator.

Foot Switches (2)

Two (2) heavy duty metal floor mounted foot switches shall be installed to operate the Q2B siren. One (1) shall be located driver's side and one officer's side for left foot.

Hose Reel Button

A heavy-duty rubber covered electric reel rewind button shall be installed to assist with rewinding the deployed hose.

Location: driver side pump panel.

Camera Shield

A diamond plate protective shield shall be provided for the top and sides of a camera. The shield shall be designed not to impede in the operational envelope of the camera.

Camera Back-Up

There shall be a Safety Vision camera model number SV-625B-KIT provided. The camera shall be mounted up high at the rear of the vehicle to provide a wide-angle rear view with audio. The camera shall include a cable with metallic waterproof threaded O-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator. The camera shall be interlocked with the chassis

transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

Back-Up Alarm

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

To provide for proper loading and efficient generator operation, the 120-volt wiring shall be split to permit a balanced load condition.

Cab Brow Light

One (1) FireTech 12V LED model FT-B-72-ML 75" black housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. the light shall feature 54 LEDs` producing 19,665 usable lumens and five (5) DOT approved marker lights. The 285W 12V light shall draw 23.75 amps.

3000-Watt Inverter

A Kussmaul 3000-watt inverter shall be installed. Exact location to be determined.

Breaker Box, Receptacles (2)

Two (2) 20-amp, 110-volt 3 prong straight blade duplex receptacles with weatherproof cover plates shall be installed, one each side in the rear wheel well offset forward. A breaker box and necessary cables to be installed.

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Paint Break

The cab shall have a two-tone paint break. The break line shall be determined at the pre-construction conference.

Un-Painted Pump/Pre-Connect Modules

All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color.

Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA 3225 RED. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

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

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

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

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Cab Two-Tone Color

The upper section of the cab shall be painted FLNA 4145 BLACK.

The paint process of the secondary cab color shall be the same as the primary color.

Paint Body Small

The apparatus body shall be painted Sikkens FLNA 3225 RED. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

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

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

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

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Cab Interior Paint

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

Scorpion Bumper Top Perimeter

The top perimeter of the formed heavy-duty bumper shall have Job Color Scorpion finish. The finish shall be applied to the top flange, radius and 1" down on the face of the heavy-duty bumper front, corners and sides.

Silver Letters with Black Background (50)

Silver letters with black background 3" tall shall be applied on the front cab doors. Exact lettering to be determined at the pre-construction conference.

Silver Letter with Black Background (34)

Silver letters with black background 12” tall shall be applied on the upper body sides. Exact lettering to be determined at the pre-construction conference.

Lettering Shade and/or Outline (84)

Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

Reflective Stripe in Rubrail

The reflective stripe in the body rubrail shall be black.

CAB AND BODY STRIPE TO BE BLACK IN COLOR

A single Scotchlite black stripe, 6 inches in width shall be installed on the cab and body. The stripe shall have a hockey style, Z or S style or any other customer specific design style.

The stripe shall be NFPA compliant, and the size, color and location shall be as specified by the customer.

CAB AND BODY STRIPES (2)

Two (2) additional Scotchlite stripes, black in color, 2 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant, and the design, size, color and location shall be as specified by the customer.

Cab Silver Paint Break Stripe

A silver cab stripe shall be applied Stripe shall be centrally located and shall contour with the cab, following the paint break.

Front Bumper Reflective Striping

Chevron style Reflexite V98 striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.

Rear Body Reflective Striping

Chevron style Reflexite V98 striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

Graphics Drawing

A graphics drawing shall be provided for the apparatus. The drawing shall include striping, lettering and logos meeting NFPA guidelines. The drawing shall be presented for review and approval by the end user prior to application of the graphics.

General 1 Year Warranty

Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Body Structural (Aluminum) Warranty

Purchaser shall receive a Body Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0502. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Plumbing and Piping (Stainless Steel) Warranty

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Meritor Front Axle Warranty

A warranty shall be provided for the front axle by Meritor Automotive. The warranty period shall be as follows based on axle type:

- FL-941, FL-943 and MFS up to 21,500: 5-year / unlimited miles parts and labor
- MFS rated at 22,800: 2-year / 200,000 miles parts and labor
- Front drive axle: 2-year / unlimited miles parts and labor

Meritor Rear Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.

Custom Chassis Warranty

Purchaser 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.

Emissions Systems Warranty

Purchaser 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.

Electrical Warranty

Purchaser shall receive an Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Cab Structural Warranty

Purchaser shall receive a Cab Structure Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Paint and Finish Warranty

Purchaser shall receive a Paint and Finish Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Frame Rail Corrosion Warranty

Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty Fire (25) Years or 150,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Frame Rail Warranty

Purchaser shall receive a Frame Rail Lifetime (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request

Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator`s position, scaled the same as the elevation views.

Approval Drawings - Dash Panel Layout

A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Electronic Manuals

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

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

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

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

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

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

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

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the E-ONE`s fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.

PRICING SCHEDULE

TO: BULLOCH COUNTY BOARD OF COMMISSIONERS
ATTN: PURCHASING MANAGER
115 N MAIN STREET
STATESBORO, GA 30458

Submissions must be sealed and either mailed, service delivered, or hand delivered to the address shown on this form. No faxed or emailed submissions will be accepted. No late submissions will be accepted.

Time is of the essence, and the purchase order is subject to termination for failure to deliver on time. The unit shall be the manufacturer's latest model and design. The Custom Pumper shall be completely assembled, serviced, and work-ready when delivered to Bulloch County.

Unit	Description	Price for Unit
1.	Make: _____ Model: _____ Year: _____	$_____
2.	Additional cost associated with this project: _____ _____ _____	$_____ $_____ $_____
3.	Total Cost for Unit $ _____	

Delivery: If awarded, the Custom-Built Pumper will be delivered, complete and ready for operation within no more than _____ calendar days after the order is placed. Be specific, do not estimate on delivery days.

Does your submission comply with all sections of our RFP including the specifications? If your answer is no, make sure to include the exceptions sheet as well as the letters of exception.

YES _____ NO _____

Pricing Schedule, page 2

It is agreed by the undersigned supplier that the signature and submission of this package represents the supplier's acceptance of all terms, conditions, and requirements of the RFP and, if awarded, the submittal package will represent the agreement between the two parties when attached to a fully executed Acceptance of Proposal form of which an example is attached.

Company Name**:** _____

Company Address**:** _____

Signature of Representative**:** _____

Printed Name of Representative: _____

Title: _____

Telephone Number**:** _____ Fax Number: _____

E-mail Address**:** _____

Date: _____

References

Submit reference information for similarly constructed apparatus' presently in service. Each reference must be for an apparatus built of the same construction style as these specifications call for. This list shall include customers' names, addresses, date apparatus was placed in service, and current contact with phone number.

1. Company Name: _____

   Contact Name: _____

   Address: _____

   Phone: _____ Email: _____

   Date Unit went into service: _____

2. Company Name: _____

   Contact Name: _____

   Address: _____

   Phone: _____ Email: _____

   Date Unit went into service: _____

3. Company Name: _____

   Contact Name: _____

   Address: _____

   Phone: _____ Email: _____

   Date Unit went into service: _____

4. Company Name: _____

   Contact Name: _____

   Address: _____

   Phone: _____ Email: _____

   Date Unit went into service: _____

EXCEPTIONS TO SPECIFICATIONS SHEET

If you have an exception to our RFP including the specifications use this sheet and list what you are taking an exception on and the description of the exception. Bulloch County will determine compliance based on the information submitted. If you have no exceptions, mark the box "NO EXCEPTIONS TAKEN" and return marked form in the RFP submittal package. Use additional pages if necessary.

☐ **NO EXCEPTIONS TAKEN**

Item(s) & Description of Exception(s)

NON-COLLUSION AFFIDAVIT

The following affidavit is to accompany the proposal:

STATE OF:

COUNTY OF:

Owner, Partner, or Officer of Firm:

Company Name, Address, County and State:

The undersigned, being of lawful age, being first duly sworn, on oath says that he/she is the agent authorized by the vendor to submit the attached proposal. In making such representation, affiant further states for himself/herself and on behalf of vendor, that they have not been a party to any collusion among vendors in restraint of competition by agreement to submit a bid or proposal at a fixed price or to refrain from proposing; or with any office of Bulloch County or any of their employees as to quantity, quality or price in the prospective contract; or any discussion between vendors and any official of Bulloch County or any of their employees concerning exchange of money or other things of value for special consideration in submitting a sealed proposal for:

FIRM NAME _____

SIGNATURE _____

TITLE_____

Subscribed and sworn to before me this _____ day of _____ 20_____.

NOTARY PUBLIC _____

BULLOCH COUNTY, GEORGIA
BIDDER DECLARATION

The bidder understands, agrees and warrants:

That the bidder has carefully read and fully understands the full scope of the specifications.

That the bidder has the capability to successfully undertake and complete the responsibilities and obligations in said specifications.

That this proposal shall be valid for **_ 60 days**.

That this proposal may be withdrawn by requesting such withdrawal in writing at any time prior to **November 17, 2022 @ 3:00 pm** but may not be withdrawn after such date and time for a period of **_60_** days.

That Bulloch County reserves the right to reject any or all proposals and to accept that offer which will, in its opinion, best serve the public interest. Bulloch County reserves the right to waive any technicalities or informalities in the proposal.

That by submission of this proposal the bidder acknowledges that Bulloch County has the right to make any inquiry or investigation it deems appropriate to substantiate or supplement information supplied by the vendor.

If a partnership, a general partner must sign.

If a corporation the authorized corporate officer(s) must sign, and the corporate seal must be affixed to this proposal.

BIDDER:

_____

Name Title

_____

Name Title

AFFIX CORPORATE SEAL (if applicable)

Subscribed and sworn to before me this _____ day of _____ 20_____.

NOTARY PUBLIC _____

TO BE COMPLETED BY AWARD WINNER ONLY

ACCEPTANCE OF PROPOSAL – EXAMPLE ONLY

Bulloch County hereby accepts the undersigned supplier's offer submitted in response to the attached Request for Proposals for the following items: _____

_____.

By executing this Acceptance of Proposal, Bulloch County and the undersigned supplier acknowledge and agree to be bound by all terms and conditions of the attached Request for Proposals and all specifications and pricing stated therein.

IN WITNESS WHEREOF, Bulloch County and the undersigned supplier have caused their authorized representatives to set their hands and seals this _____ day of _____, 20_____.

BULLOCH COUNTY, GEORGIA

By: _____
Thomas M. Couch, County Manager

[Name of Successful BIDDER]

By: _____

_____
Print or type name of signatory

[FORM OF ACCEPTANCE OF PROPOSAL]

The successful vendor(s) will be required to execute this Acceptance of Proposal.