



INVITATION TO BID
City of Sedro-Woolley
Bid No. 1-09 FD
2009 Spartan Gladiator 100'+ aerial apparatus
DATE DUE: September 25, 2009

Sealed bids will be received at the Sedro-Woolley City Hall, 325 Metcalf Street, Sedro-Woolley, WA 98284, until 2:00 p.m., Friday, September 25, 2009 for the purchase of one (1) **2009 Spartan Gladiator custom configured 100'+ aerial device**. Only bids that arrive at City Hall by the deadline will be considered.

BIDDING INFORMATION

Bid submittal sheets are attached.

Information regarding this solicitation, including addenda and bid results are available at www.ci.Sedro-Woolley.wa.us or contact Dean Klinger at 360-855-2252 or e-mail dklinger@ci.Sedro-Woolley.wa.us. All bids shall be submitted on the furnished forms. The City of Sedro-Woolley reserves the right to reject any or all submittals, waive technicalities or irregularities, and accept any submittals if such action is believed to be in the best interest of City of Sedro-Woolley. All bidders must certify that they are not on the Comptroller General's list of ineligible contractors nor the list of parties excluded from Federal procurement or non-procurement programs.

SPECIFICATIONS

Vehicle specification identified in Exhibit A attached and incorporated hereto; please note required preconstruction conference to address final specifications, mid-construction conference to address corrections and changes and pre-delivery conference as well as special requirements for the installation of the City's Cascade System. With the exception of the chassis, and to the extent that proprietary details are contained in the bid specifications, the City may consider equivalent alternatives provided the bidder clearly notes that an equivalent alternate is included and demonstrates its equivalency to the satisfaction of the City.

Bids shall include the cost of all required additional equipment including that named above, installation of all equipment named above if specified, delivery to the City of Sedro-Woolley location indicated, and any incidental and delivery costs. Bids shall include CAD program produced line drawings of the exact apparatus being proposed, according to our specifications, in an 18"x24" size. Drawings must include the left side with chassis cab, right, and rear views of the vehicle and is to fully detail all compartment sizes, door openings, crew cab layout, pump panels, and hosebed arrangement.

In any case, where a vehicle is delivered minus any part, item or accessory issued as standard manufacturer's equipment, and/or as specified by the City of Sedro-Woolley, the vendor will be immediately notified. If missing part, item or accessory cannot be provided and installed within 72 hours, the City of Sedro-Woolley reserves the right to buy the item or part from another source and bill the vendor the cost including installation.

BRAND NAMES USED IN THIS SPECIFICATION

This is a brand name specification bid. It has been determined that only the identified brand name Spartan Gladiator chassis with the 2009 Cummins diesel engine will satisfy the City of Sedro-Woolley’s needs.

PRICING AND DELIVERY

Bid price shall include delivery and shall be F.O.B. to: City of Sedro-Woolley Fire Department, 325 Metcalf Street, Sedro-Woolley, WA. Contractor shall contact the Fire Chief, Dean Klinger at (360) 855-2252 for instructions before transit and delivery.

(1) New 2009 Spartan Gladiator custom configured 100'+ aerial device is to be delivered to the City of Sedro-Woolley. The Contractor shall assure that the completed vehicle arrives safely to the specified Sedro-Woolley location, without damage, fully tested and operational. Damaged products shall be returned and not accepted at time of delivery. Delivery of the vehicle shall not be complete until all items listed in these specifications are met to the satisfaction of the City of Sedro-Woolley Fire Department. This shall include the standard warranty identification cards or certificates, the Manufacturer’s Statement of Origin and owner’s manual. The City requires vehicles to be pre-inspected and demonstrated at actual work location to ensure vehicles meet customer’s requirements and expectations.

DELIVERY TIME

Vendors must certify that the quoted equipment can be delivered and operational within the stated number of days on their bid.

PRODUCT WARRANTY

All factory warranties shall remain in full effect as equipped throughout the warranty period and will not be voided by any supplemental warranties or accessories.

BID TERM

The City has an immediate need to purchase one (1) vehicle.

BID OPENING

All bids must be submitted to the Sedro-Woolley City Hall, 325 Metcalf Street, Sedro-Woolley, WA 98284 no later than 2:00 p.m., Friday, September 25, 2009, and must be clearly marked:

**Bid No. 1-09 FD
2009 Spartan Gladiator 100'+ aerial apparatus**

Only firm bids will be accepted and the City reserves the right to reject any or all bids or waive any irregularities and informalities in the bids submitted and accepted by the City. No bidder may withdraw his bid after the hour set for the opening thereof, unless the award is delayed for a period exceeding 60 days. The City further reserves the right to make bid awards to the lowest and most responsive bidder as deemed in the best interest of the City. Bidders are cautioned that neither preliminary bid results nor an indication of the apparent lowest bid will compel the City to make an award. Award, if any, will be evidenced by the issuance of a purchase order or contract.

QUESTIONS

Unauthorized contact regarding this Invitation to Bid with City of Sedro-Woolley employees or contractors may result in disqualification. Any oral communications will be considered unofficial and non-binding to the

City of Sedro-Woolley. Bidders should rely only on written statements issued by the individual named below. Questions regarding this Invitation to Bid may be directed to

Dean Klinger
360-855-2252
dklinger@ci.Sedro-Woolley.wa.us

TAXES AND FEDERAL EXCISE TAX

Washington State sales tax shall be shown as a separate line on the bid submittal sheet. No charge by the Bidder shall be made for federal excise taxes. The City of Sedro-Woolley, as a municipal corporation of the State of Washington, is exempt from federal excise tax and such taxes shall not be included in bid prices. The City of Sedro-Woolley agrees to furnish Bidder, upon acceptance of articles supplied under this order, with an exemption certificate, if necessary. Sales tax remitted to the state of Washington shall be coded properly to reflect deliver to the City of Sedro-Woolley.

BUSINESS LICENSE

The awarded vendors are responsible to become compliant with Sedro-Woolley business license requirements per SWMC 5.04. Vendors may call 360-855-1661 for business license information.

COOPERATIVE PURCHASING

RCW 39.34 allows cooperative purchasing between public agencies (political subdivisions). Public agencies which have filed an Intergovernmental Cooperative Purchasing Agreement with the City of Sedro-Woolley and which are actively participating may purchase from City of Sedro-Woolley contracts, provided that the Vendor has agreed to such participation. Each bidder shall indicate on the bid submittal form if it will honor other public agency orders in accordance with contract terms and conditions in addition to orders from the City of Sedro-Woolley. The City of Sedro-Woolley does not accept any responsibility for orders issued by other public agencies.

Public agencies desiring to use the City of Sedro-Woolley's contracts must have executed an Intergovernmental Cooperative Purchasing Agreement with the City of Sedro-Woolley, as required by RCW 39.34. Only those public agencies that have complied with these requirements are eligible to use this contract. The public agency accepts responsibility for compliance with any additional or varying laws and regulations governing purchase by or on behalf of the public agency in question. A purchase by a public agency shall be in effect by an order from the public agency, directed to the Vendor or other party contracting to furnish goods or services to the City of Sedro-Woolley.

The City of Sedro-Woolley accepts no responsibility for the performance of any purchasing contract by the Vendor, and the City of Sedro-Woolley accepts no responsibility for payment of the purchase price for any public agency.

MULTIPLE BIDS

Vendors interested in submitting more than one bid may do so, providing each bid stands alone and independently complies with the instructions, conditions and specifications of this Invitation to Bid.

SINGLE RESPONSE

A single response to this Invitation to Bid may be deemed a failure of competition and in the best interest of the City of Sedro-Woolley, the Invitation to Bid may be cancelled.

BIDDING ERRORS

The City of Sedro-Woolley will not be liable for any errors in any vendor's bid. Vendors will not be allowed to alter bids after the deadline for the submission of bids.

The City of Sedro-Woolley reserves the right to make corrections or amendments due to errors identified in bids by the City of Sedro-Woolley or the vendor. This type of correction or amendment will only be allowed for such errors as typing, transposition or any other obvious error. Vendors are liable for all errors or omissions contained in their bids.

When, after the opening and tabulation of bids, a Bidder claims error, and requests to be relieved of award, it will be required to promptly present certified work sheets. The Buyer will review the work sheets and if the Buyer is convinced, by clear and convincing evidence, that an honest, mathematically excusable error or critical omission of costs has been made, the Bidder may be relieved of its bid.

After opening and reading bids, the City of Sedro-Woolley will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. The total of extensions, corrected where necessary, will be used by the City of Sedro-Woolley.

PAYMENT

Payment will be made within 30 days of receipt of a correct invoice for goods that have been delivered and accepted. No down payment or advance payment of any kind will be made. Washington State law requires proof that the materials have been furnished, the services rendered or the labor performed as described before payment may be made. A vendor may submit an invoice for partial shipments or progress payments. All invoices are to be submitted to:

City of Sedro-Woolley
Accounts Payable
325 Metcalf Street
Sedro-Woolley, WA 98284

BID REJECTION

The City of Sedro-Woolley reserves the right to reject any or all bids at any time without penalty.

WITHDRAWAL OF BIDS

Vendors may withdraw a bid that has been submitted at any time up to the due date and time. To accomplish this, a written request signed by an authorized representative of the vendor must be submitted to the City Supervisor.

NON-ENDORSEMENT

As a result of the selection of a vendor to supply products and/or services to the City of Sedro-Woolley, the City is neither endorsing nor suggesting that the vendor's product is the best or only solution. The vendor agrees to make no reference to the City of Sedro-Woolley in any literature, promotional material, brochures, sales presentation or the like, without the express written consent of the City of Sedro-Woolley.

PROPRIETARY MATERIAL SUBMITTED

Any information contained in the bid submitted that is proprietary must be clearly designated. Marking the entire bid as proprietary will be neither accepted nor honored. If a request is made to view a vendor's bid, the City of Sedro-Woolley will comply according to the Open Public Records Act, Chapter 42.56 RCW. If any information is marked as proprietary in the proposal, such information will not be made available until the affected vendor has been given an opportunity to seek a court injunction against the requested disclosure.

RESPONSE PROPERTY OF THE CITY OF SEDRO-WOOLLEY

All materials submitted in response to this request become the property of the City of Sedro-Woolley. Selection or rejection of a response does not affect this right.

NO OBLIGATION TO BUY

The City of Sedro-Woolley reserves the right to refrain from contracting with any vendor. The release of this Invitation to Bid does not guarantee that the City of Sedro-Woolley will purchase.

COST OF PREPARING BIDS

The City of Sedro-Woolley is not liable for any costs incurred by vendors in the preparation and presentation of bids and demonstrations submitted in response to this Invitation to Bid.

BID AWARD

If an award is made as a result of this solicitation, it will be made to the lowest, responsible bidder(s) whose bid(s) is/are determined by the City to be responsive.

Local Preference. The city may consider a local tax preference to determine the lowest responsive and responsible bidder, when purchasing materials, supplies or equipment. This consideration is at the city's option for each purchase and shall not be mandatory. In this determination, the city shall consider the sales tax that would be charged by each supplier, in calculation of the lowest responsive and responsible bidder. The city shall then calculate and credit towards the offer price the share of such tax revenue it would specifically receive as a result of purchasing from a supplier located within the city's taxing jurisdiction. The purchase must then be awarded to the lowest bidder after such tax revenue has been considered whenever this local preference is utilized by the city as a factor in determination of lowest bidder. Such tax revenue consideration shall comply with the provisions of RCW 39.30.040 now and as amended. Tax rates change from time to time and the tax rates used for the local preference calculations shall be those in effect at the time bids are due, or those reasonably expected to be in effect at the time an invoice will be payable, at the city's discretion.

DETERMINATION OF BIDDER RESPONSIBILITY

The following elements shall be given consideration in the determination of whether a bidder is responsible:

- The ability, capacity and skill of the bidder to perform the contract or provide the service required.
- The character, integrity, reputation, judgment, experience and efficiency of the bidder.
- Whether the bidder can perform the contract within the time specified
- The quality of performance of previous public and private contracts or services, including, but not limited to, the bidder's failure to perform satisfactorily or complete any written contract. The City's termination for default of a previous contract with a bidder shall be deemed to be such a failure.

- The previous and existing compliance by the bidder with laws relating to the contract or services.
- More than one proposal submitted for the same project from a bidder under the same or different names.
- Evidence of collusion with any other bidder, in which case colluding bidders will be restricted from submitting further bids on the subject project or future tenders.
- The bidder is not qualified for the work or to the full extent of the bid.
- There is uncompleted work with the City or others, or an outstanding dispute on a previous or current contract that might hinder, negatively affect or prevent the prompt completion of the work bid upon.
- The bidder failed to settle bills for labor or materials on past or current public or private contracts.
- The bidder has been convicted of a crime arising from a previous public contract, excepting convictions that have been pardoned, expunged, or annulled.
- The bidder has been convicted of a crime of moral turpitude or any felony, excepting convictions that have been pardoned, expunged or annulled, whether in this state, in any other state, by the United States, or in a foreign country, province or municipality. Bidders shall affirmatively disclose to the City all such convictions, especially of management personnel or the bidder as an entity, prior to notice of award or execution of a contract, whichever comes first. Failure to make such affirmative disclosure shall be grounds, in the City's sole option and discretion, for termination for default subsequent to award or execution of the contract.
- More likely than not, the bidder will be unable, financially or otherwise, to perform the work.
- At the time of bid opening, the bidder is not authorized to do business in Washington, is not registered as a contractor in Washington, or otherwise lacks a necessary license, registration or permit.
- Such other information as may be secured having a bearing on the decision to award the contract.
- Any other reason deemed proper by the City.

LIQUIDATED DAMAGES

Time is of the essence and the goods described herein must be completely furnished and operational by the date promised or the City of Sedro-Woolley will suffer harm. The vendor agrees to pay the City of Sedro-Woolley, as liquidated damages, a sum equal to 1% of the original contract award amount, excluding Washington States Sales Tax, for each and every calendar day that work remains uncompleted after the date promised. This amount shall be fixed as liquidated damages that the City of Sedro-Woolley will suffer by reason of such delay, and not as a penalty. The City of Sedro-Woolley shall have the right to deduct and retain the amount of such liquidated damages from any monies due the supplier.

The supplier shall be entitled to a reasonable extension of time for unavoidable delay in delivery due to causes not reasonably foreseeable by the parties at the time of the contract/purchase order execution, and that are entirely beyond the control and without the fault or negligence of the supplier. These causes include, but are not limited to, acts of God or the public enemy, war or other national emergency making delivery temporarily impossible or illegal, acts or omissions of other suppliers, strikes and labor disputes not brought on by any act or omission of the supplier, fire, flood, epidemics, quarantines, or freight embargos.

CUSTOMER REFERENCES

All bids must include a minimum of two non-vendor owned customer references presently using the proposed equipment in a comparably-sized order to the City of Sedro-Woolley's requirements. Include the following for each reference:

Company Name
Business Address
Name of Contact
Title of Contact
Telephone Number of Contact
Description of Order
Date of Order

The City of Sedro-Woolley may, at its option, contact other known vendor customers for references.

ADDENDA

Bidders are responsible to check the City of Sedro-Woolley's website: www.ci.Sedro-Woolley.wa.us for the issuance of an addenda prior to submitting a bid.

PREBID CONFERENCE

No pre-bid conference will be held for this procurement.

BID OPENING LOCATION

Sealed bids will be opened and read aloud at the appointed time in the Sedro-Woolley City Hall at 325 Metcalf Street, Sedro-Woolley, WA 98284.

Dean Klinger
Chief, SWFD
Buyer

<p>City of Sedro-Woolley Bid No. 1-09 FD 2009 Spartan Gladiator 100'+ aerial apparatus BID SUBMITTAL SHEET</p>

Description	Price Per Unit	Qty	Extended Price
New 2009 Spartan Gladiator custom outfitted 100'+ aerial apparatus with all Standard and Described Custom Equipment, including delivery	\$	X 1	\$
SUBTOTAL			\$
_____ . _____% Washington State Sales Tax			\$
TOTAL			\$

State the number of calendar days to have a guaranteed delivered to Sedro-Woolley after receipt of Purchase Order: _____

Will you sell additional units to Sedro-Woolley or other government agencies within the State of Washington at the bid price, terms and conditions until further notice? The City of Sedro-Woolley accepts no responsibility for the payment of the purchase price by other government agencies.

Yes No

Has company been in bankruptcy, reorganization or receivership in the last 5 years? Yes No

Has company been disqualified or debarred by any public agency, including the Federal Government, from participation in public contracts? Yes No

Has the company operated at least 1 year without interruption? Yes No

Has an owner of the company been convicted of a crime within the past 10 years? Yes No

Does any employee or official of the City have any financial or other interest in your firm? Yes No

The undersigned hereby accepts the terms and conditions as set forth herein including the standard terms.

This must be signed and dated by the bidder or a representative legally authorized to bind the bidder.

FULL LEGAL NAME OF COMPANY _____

ADDRESS _____

CITY/STATE/ZIP _____

EMAIL ADDRESS: _____

PHONE _____ FAX _____

NAME (PLEASE PRINT) _____ TITLE _____

SIGNED _____ DATE _____

SEDRO-WOOLLEY BUSINESS LICENSE _____

**City of Sedro-Woolley
Bid No. 1-09 FD
2009 Spartan Gladiator 100'+ aerial apparatus
CUSTOMER REFERENCES**

1. Company Name _____

Business Address _____

Name of Contact _____

Title of Contact _____

Telephone Number of Contact _____

Description of Order _____

Date of Order _____

2. Company Name _____

Business Address _____

Name of Contact _____

Title of Contact _____

Telephone Number of Contact _____

Description of Order _____

Date of Order _____

VENDOR INFORMATION

Years of Operation: _____

Warranty Policies and Procedures: _____

City of Sedro-Woolley
Bid No. 1-09 FD
2009 Spartan Gladiator 100'+ aerial apparatus
NON COLLUSION CERTIFICATION

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an offer for this bid/quote, and is in all respects fair and without collusion or fraud.

The below signed bidder has not divulged to nor has discussed or compared his bid with other bidders and had not colluded with any other bidder or parties to bid whatsoever. Note: No premiums, rebates or gratuities to any employee or agent are permitted either with, prior to, or after any delivery of materials. Any such violation will result in the cancellation and/or return of material as applicable.

Company Name: _____

Mailing Address: _____

City/State/Zip: _____

Title: _____

Date: _____

Authorized Signature: _____
(written)

Authorized Signature: _____
(typed/printed)

City of Sedro-Woolley
Bid No. 1-09 FD
2009 SPARTAN GLADIATOR 100'+ AERIAL
APPARATUS
STANDARD TERMS

STANDARD TERMS AND CONDITIONS: INVITATION TO BID, REQUEST FOR QUOTATION & PURCHASE ORDER CONTRACT

THE PURCHASE ORDER INCLUDES THE FOLLOWING TERMS AND CONDITIONS AND INCLUDES, BUT IS NOT LIMITED TO THE INVITATION TO BID, REQUEST FOR QUOTATIONS, SPECIFICATIONS, PLANS, AND PUBLISHED RULES AND REGULATIONS OF THE CITY OF SEDRO-WOOLLEY AND THE LAWS OF THE CITY OF SEDRO-WOOLLEY PURCHASING DIVISION AND THE STATE OF WASHINGTON, WHICH ARE HEREBY INCORPORATED BY REFERENCE.

1. **CHANGES** No alteration in any of the terms, conditions, delivery price, quality, quantities, or specification of this order will be effective without written consent of the City Supervisor/Purchaser.
2. **HANDLING** No charges will be allowed for handling, including but not limited to packing, wrapping bags, containers or reels, unless otherwise stated herein.
3. **DELIVERY** For any exception to the delivery date as specified on this order, vendor shall give prior notification and obtain written approval thereto from the City Supervisor with respect to delivery under this order. Time is of the essence and the order is subject to termination for failure to deliver as specified and/or appropriate damages. The acceptance by the Purchaser of late 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 Vendor.
4. **PAYMENTS, CASH DISCOUNT, LATE PAYMENT CHARGES** Invoices will not be processed for payment nor will the period of computation for cash discount commence until receipt of a properly completed invoice or invoiced items are received, whichever is later. If an adjustment in payment is necessary due to damage or dispute, the cash discount period shall commence on the date final approval for payment is authorized.
5. **SHIPPING INSTRUCTIONS** Unless otherwise specified, all goods are to be shipped prepaid, F.O.B. Destination. Where shipping addresses indicate room numbers it will be up to the Vendor to make delivery to that location at no additional charge where specific authorization is granted to ship goods FOB shipping point. Vendor agrees to prepay all shipping charges, route as instructed or if instructions are not provided, route by cheapest common carrier and to bill the Purchaser as a separate item on the invoice for said charges. Each invoice for shipping charges shall contain the original or a copy of the bill indicating that the payment for shipping has been made. It is also agreed that the Purchaser reserves the right to refuse COD shipments.
6. **REJECTION** All goods or materials purchased herein are subject to approval by the Purchaser. Any rejection of goods or material resulting because of nonconformity to the terms and specifications of this order, whether held by the Purchaser or returned, will be at Vendor's risk and expense.
7. **IDENTIFICATION** All invoices, packing lists, packages, shipping notices, instruction manuals, and other written documents affecting this order shall contain the applicable purchase order number.
8. **INFRINGEMENTS** Vendor agrees to protect and save harmless the Purchaser against claims, suits or proceedings for patent, trademark, copyright or franchise infringement arising from purchase, installation, use of goods and materials ordered, and assume all expenses or damages arising from claims, suits or proceedings.
9. **WARRANTIES** Vendor warrants that articles supplied under this order conform to specifications herein and are fit for the purpose for which such goods are ordinarily employed, except that if a particular purpose is stated, the material must then be fit for that particular purpose.
10. **ASSIGNMENTS** Provisions or moneys due under this contract shall only be assignable with prior written consent of the City Supervisor.
11. **TAXES** Unless otherwise indicated the Purchaser agrees to pay all State of Washington sales or use tax. No charge by Vendor shall be made for federal excise taxes, and the Purchaser agrees to furnish Vendor, upon acceptance of articles supplied under this order with an exemption certificate.
12. **LIENS, CLAIMS AND ENCUMBRANCES** Vendor warrants and represents that all the goods and materials ordered herein are free and clear of all liens, claims, or encumbrances of any kind.
13. **RISK OF LOSS** Regardless of FOB point, Vendor agrees to bear all risks of loss, injury or destruction of goods and materials ordered herein which occur prior to delivery. Such loss, injury or destruction shall not release Vendor from any obligation hereunder.
14. **SAVE HARMLESS** Vendor shall protect, indemnify, and save the Purchaser harmless from and against any damage, cost or liability for any injuries to persons or property arising from acts or omissions of Vendor, his employees, agents or subcontractors howsoever caused.
15. **PRICES** If price is not stated on this order, it is agreed that the goods shall be billed at the price last quoted or paid, or prevailing market price whichever is lower.

16. **TERMINATION** In the event of a breach by Vendor of any of the provisions of this contract, the Purchaser reserves the right to cancel and terminate this contract forthwith upon giving oral or written notice to Vendor. Vendor shall be liable for damages suffered by the Purchaser resulting from Vendor's breach of contract.
17. **NONDISCRIMINATION AND AFFIRMATIVE ACTION** The vendor agrees not to discriminate against any client, employee or applicant for employment or services because of race, creed, color, national origin, sex, marital status, age or the presence of any sensory, mental or physical handicap with regard to, but not limited to, the following employment upgrading, demotion, or transfer, recruitment or recruitment advertising, lay-offs or termination, rates of pay or other forms of compensation, selection for training or rendition of services.
18. It is further understood that any vendor who is in violation of this clause or an applicable Affirmative Action Program shall be barred forthwith from receiving awards of any purchase order from the CITY unless a satisfactory showing is made that discriminatory practices or noncompliance with applicable Affirmative Action Programs have terminated and that a recurrence of such acts is unlikely.
19. **LABOR AND INDUSTRIES** Contractor is required to procure Labor and Industries permits F700-007-000 and F700-029-000 and abide by the requirements thereof. Copies of "Statement of Intent to Pay Prevailing Wages" and "Affidavit of Wages Paid" shall be submitted to the City Clerk and Department of Labor and Industries, if applicable.
20. **ANTI-TRUST** Vendor and the Purchaser recognize that in actual economic practice overcharges resulting from anti-trust violations are in fact Borne by the Purchaser. Therefore, Vendor hereby assigns to the Purchaser any and all claims for such overcharges.
21. **DEFAULT** The Vendor covenants and agrees, in the event suit is instituted by the Purchaser for default on the part of the Vendor, and the Vendor is adjudged by a court of competent jurisdiction to be in default, he shall pay to the Purchaser all cost, expenses expended or incurred by the Purchaser in connection therewith, and reasonable attorney's fees. The Vendor agrees that the Washington State Superior Court shall have jurisdiction over any such suit, and that venue shall be laid in Skagit County.
22. **BRANDS** When a special brand is named it shall be construed solely for the purpose of indicating the standards of quality, performance, or use desired. Brands of equal quality, performance, and use shall be considered, provided Vendor specifies the brand and model and submits descriptive literature when available. Any bid containing a brand which is not of equal quality, performance, or use specified must be represented as an alternate and not as an equal, and failure to do so shall be sufficient reason to disregard the bid.
23. **ACCEPTANCE BY ACCEPTING THIS PURCHASE ORDER IN WRITING OR BY DELIVERING THE MATERIAL ORDERED, YOU ACCEPT ALL TERMS AND CONDITIONS SET FORTH. FORMAL OBJECTION IS HEREBY MADE TO ANY ADDITIONAL OR DIFFERENT TERMS PROPOSED BY VENDOR AS A CONDITION OF ACCEPTANCE OR DELIVERY.**

One (1)

Y__N__

MODEL

The chassis shall be a Gladiator model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

One (1)

Y__N__

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2009 model year.
NO ALTERNATIVES WILL BE CONSIDERED FOR THIS SPECIFICATION.

One (1)

Y__N__

COUNTRY OF SERVICE

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

One (1)

Y__N__

APPARATUS TYPE

The apparatus shall be an aerial vehicle designed for emergency service use. The apparatus shall be equipped with a rear mount ladder with water way.

One (1)

Y__N__

VEHICLE TYPE

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

One (1)

Y__N__

AXLE CONFIGURATION

The chassis shall feature a 6 X 4 axle configuration consisting of a tandem rear drive axle set with a single front steer axle.

One (1)

Y__N__

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 23,000 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel. Vehicle shall comply with all Washington State regulations for vehicle weight.

One (1)

Y__N__

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 48,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel. Vehicle shall comply with all Washington State regulations for vehicle weight.

One (1)

Y__N__

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location.

One (1)

Y__N__

CAB STYLE

The cab shall be a custom, enclosed model, built specifically for the fire service by a company specializing in cab and chassis design for all fire service applications.

The cab shall be manufactured for heavy-duty service utilizing adequate strength and capacity for the application of protecting firefighters. The cab shall be of a modular design offering improved strength, durability and reduced weight. The modular design shall allow for faster, less costly replacement of components. Per pound, sheet panel aluminum extrusions offer a higher tensile strength, 45,000 PSI, and yield strength, 40,000 PSI, than that of lower grade sheet such as 3003-H13. For this reason, the cab shall be of aluminum extrusion construction, which shall offer superior strength and the truest, flattest surface ensuring less expensive paint repairs if needed.

The method of cab construction shall use a process incorporating techniques outlined in accordance with the American Welding Society D1.1-96 requirements for structural steel welding. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side panels shall be assembled using proven industrial adhesives, designed specifically for aluminum fabrication, which exceed the strength of a weld, for construction.

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

The cab shall be constructed of 5052-H32 Marine Grade, one hundred percent primary aluminum plate. A single formed, one (1) piece extrusion, manufactured from 6061-T6 100 percent primary one-quarter inch thick aluminum shall be used for the "A" pillar adding strength and rigidity to the cab as well as additional roll-over protection. The cab side wall and roof skins shall be 0.125 inch thick, the rear wall skin shall be 0.19 inch thick, the front skin shall be 0.125 inch thick.

The cab shall incorporate tongue and groove fitted 6061-T6 0.25 inch thick aluminum extrusions for extreme duty situations. The cab shall include multi-layer composite insulation for improved cab heating and cooling in addition to noise reduction.

Proposals offering products built with anything less than the alloy-temper mentioned or from any other material, other than aluminum, shall not be considered. Additionally, any cabs utilizing recycled or recovered aluminum plate or extrusion products shall not be considered due to impurities in the composition leading to a lack of strength.

The cab shall incorporate a fully enclosed design, allowing for a spacious cab area with no partition between the front and rear sections of the cab. The walls of the vehicle shall include roof supports allowing for an open design. The outside dimension of the cab shall be 96.00 inches wide with a minimum interior width of 90.00 inches.

The cab overall length shall be 130.38 inches in length with 54.00 inches from the centerline of the front of the axle to the back of the cab. The cab shall offer an interior height of 58.00 inches from the front floor to the headliner and a rear floor to headliner height of 55.00 inches in the crew area, at a minimum. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

In order to offer the optimum amount of cab space to occupants, there shall be no consideration given for any cab unable to comply with the minimum measurements for interior cab space as listed.

The cab shall include a driver and officer area with two (2) cab door openings. The front door opening shall offer a clear door opening of 43.00 inches wide X 56.00 inches high. The rear door opening shall offer a clear door opening of 34.00 inches wide X 54.00 inches high. This style of cab shall also include a crew area offering up to eight (8) seating positions.

The cab shall incorporate a two (2) step configuration from the ground to the cab floor for each door opening. The lower step shall be constructed of heavy duty safety grating which meets or exceeds Federal Specification RRG-1602-latest revision and performs under dry, greasy, muddy, soapy and icy conditions and offers open drainage.

The first step for the driver and officer area shall measure 11.44 inches deep X 31.13 inches wide. The intermediate step shall measure 8.75 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure 12.13 inches deep X 20.44 inches wide. The intermediate step shall measure 10.50 inches deep X 23.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches.

One (1)

Y__N__

CAB FRONT FASCIA

The front cab fascia shall be constructed of lightweight, impact resistant fiberglass reinforced plastic which shall be attached to the front cab. The cab fascia shall feature a smooth appearance which includes recessed modules for the headlights, turn signals, warning lights and the grille.

The style cab fascia shall include module provisions, one (1) each side for (2) single Hi/Low beam headlight assemblies. The module shall feature an integrated side and turn marker light assembly. This module shall be hinged permitting easy maintenance of the headlight and turn and marker lighting assemblies. The hinged headlight module shall also offer access to the ember separator, the electrical bulkhead connections and the transmission electronic communications module.

The fascia shall include additional intake provisions at the lower portion just above the bumper further enhancing the total free air intake for engine cooling.

One (1)

Y__N__

FRONT GRILLE

The grille shall feature an upper and lower section with a hidden hinge in the center. The upper, hinged portion of the grille shall allow access for quick and convenient fluid checks. Access shall also be provided for service to the windshield wiper motor and linkage, the ember separator headlight assemblies, electrical connections and the transmission ECU. The grille shall allow for a minimum total free air intake of 677.00 square inches.

One (1)

Y__N__

CAB PAINT EXTERIOR

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

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The cab shall then be painted with the color specifically designated by the customer with a minimum thickness of two 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils.

One (1)

Y__N__

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

One (1)

Y__N__

CAB PAINT PRIMARY COLOR

The paint color shall be PPG FBCH 2185 White.

One (1)

Y__N__

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

One (1)

Y__N__

CAB ENGINE TUNNEL

The cab interior shall include a fixed type engine tunnel cover sized to accommodate an engine with a smaller block or an engine which has a large block. The engine tunnel shall be an integral part of the cab constructed of 5052-H32 Marine Grade, .190 of an inch thick, one hundred percent primary aluminum plate. The tunnel shall be a maximum of 41.50 inches wide X 29.00 inches high.

The engine tunnel shall be insulated with multi-layer insulating material, consisting of foam, a sound barrier of 1.0 pounds per square foot with a facing which resists heat transfer. This insulation shall be held in place by adhesive, aluminum stick pins and retention caps. Any exposed insulation seams and edges shall be sealed reducing moisture and debris.

One (1)

Y__N__

CAB ENTRY DOORS

The cab shall include a driver and officer area with two cab door openings which offer a clear door opening of 40.75 inches wide.

The doors shall be constructed of extruded aluminum with a nominal thickness of .125 inch. The exterior skins shall be constructed of .125 inch aluminum plate. The cab shall include four (4) entry doors as high as possible for ease of entering and egress when outfitted with an SCBA.

All cab and crew doors shall be of substantial weight for the optimum strength and rigidity for the best performance in all cab crash testing. Any cab with front and crew doors manufactured of less than the material thickness of .125 inch in both the extrusion and exterior skin shall not be considered.

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

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each hinge shall be .375 inch piano style and be constructed of stainless steel.

The piano style hinge and hidden flush mounted door is the most favorable construction keeping dirt and debris out of the hinge allowing for optimum operation throughout the lifetime of the door.

Proposals offering door hinge thickness any less than stated shall not be considered.

Proposals including doors that do not comply with the flush mounting as described or those including exposed hinges shall not be considered.

One (1)

Y__N__

CAB ENTRY DOOR TYPE

All cab entry doors shall be full length in design to fully enclose the lower cab steps.

One (1)

Y__N__

CAB STRUCTURAL WARRANTY

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

One (1)

Y__N__

CAB TEST INFORMATION

The cab shall have successfully achieved survival of the International crash test ECE-29, Addendum 28, Revision 1 as indicated below.

As part of the ECE regulation 29 test, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 lbs/ft of force to the cab front face.

The cab shall be so constructed that after the test, there will be minimal intrusion of the cab structure into the passenger area. The doors shall remain usable for both entry and exit. Also, as part of the test the cab roof must withstand a static load bearing test. The cab shall withstand a weight of over 60,000 pounds without permanent damage or collapse.

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

One (1)

Y__N__

ELECTRICAL SYSTEM

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

One (1)

Y__N__

OEM WIRING

The wiring system shall include a custom interface harness designed to the specs provided by the OEM, as well as a custom interface harness provided by the aerial device manufacturer which shall include the select aerial device controls.

The OEM custom interface harness shall include a road and pump switch with "pump engaged" and "ok to pump" lamps mounted on the drivers panel, one rear warning rocker switch will be provided on the rocker switch panel, one (1) 12 volt 200 amp continuous duty solenoid and 200 amp fuse mounted above the drivers battery box controlled by master power.

The aerial device interface harness shall include one rocker switch in the cab dash.

One (1)

Y__N__

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed on the officer side bulkhead below the dash which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

One (1)

Y__N__

VEHICLE DATA RECORDER

The chassis shall have a Class One Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901. The following information shall be recorded:

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

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

One (1)

Y__N__

POWER & GROUND STUD

A 40 amp battery direct power and ground stud shall be provided and installed in the electrical distribution panel. The stud shall be size #10 and protected with a 40 amp circuit breaker.

One (1)

Y__N__

EXTERIOR ELECTRICAL TERMINAL COATING

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

One (1)

Y__N__

ENGINE

The power plant for the vehicle shall offer a high pressure performance, turbo charged engine which shall feature a high pressure common rail fuel system. This system shall be coupled with a

proven Holset turbo which delivers outstanding performance at ratings up to 450 HP. The Cummins ISM engine shall include replaceable mid-stop cylinder liners plus heavy duty roller followers, targeted piston cooling and 30% more efficient oil cooling for improved durability and reliability. The heavy duty design shall also feature stronger braking capacity.

The engine shall be EPA certified to meet the very latest emissions standards without compromising performance, reliability or durability. The Cummins ISM 450 engine shall feature an air charge cooled engine which consists of an in line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2000 RPM which shall be governed at 2100 RPM. The torque rating shall feature 1550 foot pounds of torque at 1200 RPM with 661 cubic inches of displacement. The Cummins ISM 450 engine shall feature an electronic governor.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

One (1)

Y__N__

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

One (1)

Y__N__

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with a high-idle speed control which shall be pre-set to maintain the engine idle at a pre-determined rate when activated manually. This device shall operate when the master switch is activated and safely interlocked only to function when the transmission is in neutral with the parking brake set.

One (1)

Y__N__

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

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

One (1)

Y__N__

AUXILIARY ENGINE BRAKE

A Jacobs engine compression brake, for the six (6) cylinder engine shall be provided. The engine compression brake shall actuate the vehicle's brake lights when engaged. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine brake shall activate upon 0% accelerator when in operation mode.

One (1)

Y__N__

AUXILIARY ENGINE BRAKE CONTROL

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

A valid gear ratio is detected.

The driver has requested or enabled engine compression brake operation.

The throttle is at a minimum engine speed position.

The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

There is no active ABS event.

The compression brake shall be controlled through an off/low/high rocker switch on the dash.

One (1)

Y__N__

FLUID FILLS

The front of the chassis shall accommodate fluid fills for the engine oil and the windshield washer fluid through the grille. This area shall also accommodate checks for the engine oil.

One (1)

Y__N__

ELECTRONIC ENGINE OIL LEVEL INDICATOR

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

One (1)

Y__N__

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

One (1)

Y__N__

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM discreet wire remote throttle circuit will be turned on for use with a discreet wire based pump controller.

One (1)

Y__N__

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE FAN DRIVE

The engine cooling system fan shall be direct drive belt driven on the engine.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the fire industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall utilize heavy-duty welds and be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a stacked, single depth package that provides the maximum cooling capacity for the specified engine as well as offers excellent serviceability. The main components shall include a surge tank, a charge air cooler, a recirculation shield, and a radiator.

There shall be a single depth core that allows greater efficiency, enhanced serviceability, and lighter weight with a higher ambient capability.

The cooling package core shall be protected by a radiator skid plate and not protrude below the frame of the vehicle by more than 3.5 inches. This feature shall provide an improved angle of approach thereby reducing possible damage.

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall include a minimum of a 910 square inch core and shall be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded Polymer fan blade designed to provide long life in harsh environments. Polymer fans provide a significant weight reduction over metal fans providing longer life for fan clutch linings and bearings along with increased fan belt life.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufacturer's pressure requirements as well as the system design requirements.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance. When a center bumper compartment is installed an additional shield may be required to redirect the airflow into the coolers.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with welded side tanks. The charge air cooler shall have a minimum of a 473 square inch core and be bolted to the top of the radiator to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufactures requirements.

One (1)

Y__N__

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

One (1)

Y__N__

ENGINE COOLANT FILTER

An engine coolant filter with a shut-off valve for the inlet and outlet shall be installed on the chassis. The location of the filter shall allow for easy maintenance.

Proposals offering engines equipped with coolant filters shall be supplied with standard non-chemical type particulate filters.

One (1)

Y__N__

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

One (1)

Y__N__

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

One (1)

Y__N__

COOLANT HOSES

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

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the officer side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a galvanized steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the officer side. The dry type filter shall ensure dust and debris safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter cone pack, which shall result in pressure differential for improved horsepower and fuel economy. The air intake shall be mounted within easy access via a hinged panel behind the headlight module. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE EXHAUST SYSTEM

The exhaust system shall be installed under the frame and shall terminate horizontally on the officer side of the vehicle ahead of the rear tires. A muffler and 0.065 wall aluminized steel exhaust tubing shall be installed. The tubing shall be supported by brackets which are bolted to the frame for strength and rigidity. Stainless steel flex tubing shall be installed between exhaust pipe and the muffler system. Any joints throughout the system shall be connected with overlapping band style clamps.

TRANSMISSION

The drive train shall include an Allison Gen IV-E model EVS 4000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

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

The Gen IV-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

The transmission gear ratios shall be:

- 1st - 3.51:1
- 2nd - 1.91:1
- 3rd - 1.43:1
- 4th - 1.00:1

5th - 0.74:1
6th - 0.64:1 (if applicable)
Rev- 4.80:1

One (1)

Y__N__

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select the fifth speed operation without the need to press the mode button.

One (1)

Y__N__

TRANSMISSION FEATURE PROGRAMMING

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

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

An eight (8) pin Delphi connector will be provided next to the steering column connector. This will contain the following input/output circuits to the transmission tcm.

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

One (1)

Y__N__

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

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

One (1)

Y__N__

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall provide a prognostic indicator (wrench symbol) on the digital display between the selected and attained indicators. The prognostics monitor various operating parameters to determine and shall alert you when a specific maintenance function is required.

One (1)

Y__N__

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

One (1)

Y__N__

TRANSMISSION COOLING SYSTEM

The transmission shall include an air to oil cooler integrated into the lower portion of cooling package. The transmission cooling system shall meet all transmission manufacturer requirements. The cooling system shall feature a circuit provision located within the hydraulic transmission oil which shall provide for rapid warm up to the optimum transmission operating temperature.

Proposals offering water to oil style transmission cooling systems shall not be accepted.

One (1)

Y__N__

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

One (1)

Y__N__

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1810 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. A splined slip joint shall be provided in each driveshaft and shall be coated with Glide coat®.

One (1)

Y__N__

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

One (1)

Y__N__

MIDSHIP PUMP / GEARBOX MODEL

The driveline shall be for a Waterous CSUC10 model pump which shall be installed by the original equipment manufacturer or body builder.

One (1)

Y__N__

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a fuel filter/water separator as a primary filter as approved by the engine manufacturer.

One (1)

Y__N__

FUEL LINES

The fuel system lines shall be black textile braid covered high tensile steel reinforced wire braided supply and return hoses with steel reusable fittings installed from the tank to engine.

One (1)

Y__N__

FUEL COOLER

An aluminum cross flow air to fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located behind the rear axle.

One (1)

Y__N__

FUEL TANK

The fuel tank shall have a minimum capacity of fifty (50) gallons and measure 35.00 inches wide X 15.00 inches high X 24.00 inches long. The baffled tank shall be made of 14 gauge aluminized steel. The tank exterior is painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The fuel tank shall be mounted 2.00 inches below the frame, behind the rear axle. The tank can be easily lowered and removed for service purposes.

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

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.5 inch NPT drain plug shall be centered in the bottom of the tank.

One (1)

Y__N__

FUEL TANK FILL PORT

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

One (1)

Y__N__

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-23. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 23,000 pounds. This rating shall require special approvals from the wheel manufacturers.

One (1)

Y__N__

FRONT AXLE WARRANTY

The front axle shall be warranted by Meritor for two (2) years with unlimited miles under the heavy service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

One (1)

Y__N__

FRONT WHEEL BEARING LUBRICATION

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

One (1)

Y__N__

FRONT SHOCK ABSORBERS

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

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

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

One (1)

Y__N__

FRONT SUSPENSION

The front suspension shall include nine (9) leaf, 53.38 inch long and 4.00 inches wide taper leaf springs with a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 23,000 pounds.

One (1)

Y__N__

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column shall be a seven (7) position tilt and 2.25 inch telescopic type with an 18.00 inch steering wheel located on the left side of the cab designating the driver’s position. The steering wheel shall be covered with black absorbite padding.

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

One (1)

Y__N__

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers 20V and shall be gear driven from the engine. The pump shall be a fixed displacement vane type.

One (1)

Y__N__

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

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

One (1)

Y__N__

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48 degrees to the left and 44 degrees to the right.

One (1)

Y__N__

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85 with an assist cylinder.

One (1)

Y__N__

CHASSIS ALIGNMENT

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

The completed apparatus shall be rechecked for proper alignment once the chassis has been fully loaded and before being placed in service.

One (1)

Y__N__

REAR AXLE

The rear axle shall be a Meritor model number RT-46-160 tandem drive axle. The axle shall feature high performance capability to be used in heavy duty on/ off road applications. The tandem axle shall be designed for durability in rugged applications. The tandem axle shall be equipped with a large, bolt on, 18.00 inch ring gear which shall provide high torque handling capability and a heavy housing of 0.50 inch which shall offer greater pulling power and capacity.

The axle shall feature precision forged differential gears and shall have a rated capacity of 48,000 pounds.

One (1)

Y__N__

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for (2) years with unlimited miles under the heavy service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

One (1)

Y__N__

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

One (1)

Y__N__

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

One (1)

Y__N__

REAR AXLE DIFFERENTIAL CONTROL

The tandem axle chassis shall include an inter-axle differential lock, which will allow both axles to be engaged as drive axles. The inter-axle differential lock shall be controlled by a locking rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the inter-axle differential control.

One (1)

Y__N__

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 60 MPH +/-2 MPH at governed engine RPM.

One (1)

Y__N__

REAR SUSPENSION

The tandem axle rear suspension shall be a Ridewell Dynalastic RD202 with accordion elastomer springs, incorporating a straddle mount pedestal and urethane pivot bushings, preset load distribution and independent axle movement. The rear tandem suspension shall have 54" axle centers.

The rear tandem suspension capacity shall be rated at 40,000 to 48,000 pounds.

One (1)

Y__N__

REAR SHOCK ABSORBERS

Shock absorbers shall be supplied by the suspension manufacturer and installed on the rear axle suspension.

One (1)

Y__N__

FRONT TIRE

The front tires shall be Michelin 425/65R22.5 "L" tubeless radial XFE regional tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a speed capacity of 65 miles per hour when properly inflated to 120 pounds per square inch.

The front tire US Fire Service Intermittent Usage load capacity shall be 23,000 pounds per axle with a speed capacity of up to 75 miles per hour when properly inflated to 120 pounds per square inch.

One (1)

Y__N__

REAR TIRE

The rear tires shall be Michelin 11R-22.5 16PR "H" tubeless radial XDN2 all weather tread designed for exceptional traction and mileage.

The rear tire stamped load capacity shall be 24,020 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

The rear tire US Fire Service Intermittent Usage load capacity shall be 24,820 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

One (1)

Y__N__

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inches X 12.25 inches polished aluminum wheels. The wheels shall feature one- piece hot forged strength, more payload capacity and brilliant good looks which last.

One (1)

Y__N__

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch LvL One™ aluminum wheels. Each outer wheel shall have a polished aluminum finish on the exterior surface and each inner wheel shall have a machine finish.

One (1)

Y__N__

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons with cutouts for oil seal viewing (there shall be no cutout on front drive, IFS axles, or when the front wheel bearing lubrication is grease). The covers and baby moons shall feature a mirror shine finish and shall be shipped loose with the chassis for installation by the apparatus builder.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats, also in a mirror shine finish, which shall be shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand, and constructed of 304L grade, non-corrosive stainless steel meeting D.O.T. certification standards.

One (1)

Y__N__

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a three (3) air tank, four (4) reservoir system with a total of 6220 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss.

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

A six (6) sensor, six (6) modulator anti-lock braking system (ABS) shall be installed on the front and tandem rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Automatic traction control which shall be installed on the tandem rear axle. The automatic traction control system shall apply the anti-lock braking system when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

Additional handling capabilities shall include roll stability control which shall monitor the vehicles rollover threshold based on the lateral acceleration. The system shall activate a computerized device which shall slow the vehicle when the threshold is exceeded in either direction. Normal vehicle operation shall resume once the problematic conditions cease. Roll stability control shall be integral with the ABS and ATC systems.

A momentary rocker style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light and the light on the rocker switch shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The electronic stability control unit (ESC) is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle’s motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle’s lateral acceleration. The CAN bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

One (1)

Y__N__

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17" vented rotors.

One (1)

Y__N__

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type.

One (1)

Y__N__

PARK BRAKE

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

One (1)

Y__N__

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the left hand dash to the right of the steering column within easy reach of the driver.

One (1)

Y__N__

REAR BRAKE SLACK ADJUSTERS

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

One (1)

Y__N__

REAR BRAKE DUST SHIELDS

The rear brakes shall be equipped with brake dust shields.

One (1)

Y__N__

AIR DRYER

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

One (1)

Y__N__

FRONT BRAKE CHAMBERS

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

One (1)

Y__N__

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/30 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 30 brake chamber shall offer a 30.00 square inch effective area.

One (1)

Y__N__

AIR COMPRESSOR

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

One (1)

Y__N__

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air cleaner bracket on the right frame rail behind the officer step.

One (1)

Y__N__

MOISTURE EJECTORS

Manual drain valves shall be installed on all reservoirs of the air supply system.

One (1)

Y__N__

AIR SUPPLY LINES

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

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

One (1)

Y__N__

WHEELBASE

The chassis wheelbase shall be 238.00 inches.

One (1)

Y__N__

REAR OVERHANG

The chassis rear overhang shall be 112.00 inches.

One (1)

Y__N__

FRAME

The frame shall consist of triple channel rails running parallel to each other reinforced with cross members forming a ladder style frame. The sides of the rails shall be formed in the shape of a "C" channel, 10.25 inches high X 3.5 inches deep X .38 inches thick, with an inner channel 9.44 inches high X 3.13 inches deep X .38 inches thick, with a second inner channel, 8.55 inches high X 2.75 inches deep X .25 inches thick shall be added extending from the rear of the cab to the front rear spring hanger all made up of 110,000 psi minimum yield high strength low alloy steel. Each triple rail shall be rated by a Resistance Bending Moment (RBM) minimum of 3,921,500 inch pounds and have a minimum section modulus of 35.65 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" shall not be considered.

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

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The head bolts shall be flanged type with distorted threads, held in place by flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

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

Frame rails will be manufactured such that bolt attachment holes are specific for each component and shall not include any unnecessary holes.

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

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

Proposals offering warranties for frames not including cross members shall not be considered.

One (1)

Y__N__

FRAME WARRANTY

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

One (1)

Y__N__

MISCELLANEOUS FRAME OPTIONS

The frame shall include drillings which shall be specific to mounting a 109 ft. RK Aerial apparatus.

One (1)

Y__N__

REAR TOW DEVICE

Two (2) heavy duty painted tow eyes shall be installed extending rearward from the frame at the rear of the chassis. The tow eyes shall be fabricated from 0.75 inch thick #1020 ASTM-36 hot rolled steel. The inside diameter of the tow eye shall be 2.00 inches and shall have a chamfered edge. The tow eyes shall be bolted one (1) on each side to the outside of the chassis frame with grade 8 bolts.

One (1)

Y__N__

FRAME PAINT

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

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance, per ASTM D2794, shall have a direct impact resistance of 120.00 inches per pound at 2 mils. The salt spray resistance per ASTM B-117-97 shall pass 500 hours of salt spray test. The applied process shall allow the application of other products over it and still maintain or exceed the 500 hours salt spray test.

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

One (1)

Y__N__

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12" high and 101" wide.

One (1)

Y__N__

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended 21.00 inches ahead of the cab.

One (1)

Y__N__

FRONT BUMPER EXTENSION WIDTH

The front bumper extension splayed frame rails shall include an overall width of 44.75 inches.

One (1)

Y__N__

FRONT BUMPER APRON

The 21.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

One (1)

Y__N__

FEDERAL Q2B SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123.00 decibels of sound at 10.00 feet. The siren shall produce a long distance warning siren which shall include a unique heavy duty caster clutch design which provides a longer coast down sound while reducing the amp draw requirements to (100) amps. The Federal Q2B™ siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. Exact location shall be determined at pre-construction.

One (1)

Y__N__

AIR HORN

The front bumper shall include two (2) Grover brand air horns which shall measure 24.50 inches long with a 6.00 inch round flare. The air horn shall be a trumpet style and shall include a chrome finish.

One (1)

Y__N__

AIR HORN LOCATION

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

One (1)

Y__N__

AIR HORN RESERVOIR

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

One (1)

Y__N__

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted black shall be installed below the front bumper, rearward position and bolted directly to the side of the chassis frame with grade 8.00 bolts.

One (1)

Y__N__

CAB TILT SYSTEM

The entire cab shall be capable of tilting 45 degrees to allow for easy maintenance of the engine and transmission.

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

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

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

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

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

One (1)

Y__N__

CAB TILT LIMIT SWITCH

A cab limit switch shall be installed. The switch will effectively limit cab's travel when being tilted. The final adjustment of the switch shall be performed by the apparatus manufacturer to prevent damage to the cab and any bumper mounted option mounted in the cab tilt arc.

One (1)

Y__N__

CAB TILT CONTROL RECEPTACLE

The cab tilt shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a 6-pin Deutsch connector that includes a cap. The remote control pendant shall also include 20.00 feet of cable which also includes a mating connector.

One (1)

Y__N__

CAB WINDSHIELD

The cab windshield shall have a surface area of 2884.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The distance from the driver and officer to the windshield shall be a minimum of 42.00 inches at the furthest seated position. This distance shall ensure the safety of the driver and officer from intruding objects in the unlikely event of a head on collision.

The glass utilized for the windshield a standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and maintenance costs. All proposals offering windshields not in compliance with the minimum measurement of surface area stated above and are not fully interchangeable shall not be considered.

One (1)

Y__N__

GLASS FRONT DOOR

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

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

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

One (1)

Y__N__

GLASS TINT FRONT DOOR

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

One (1)

Y__N__

GLASS REAR DOOR RH

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

One (1)

Y__N__

GLASS TINT REAR DOOR RH

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

One (1)

Y__N__

GLASS REAR DOOR LH

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

One (1)

Y__N__

GLASS TINT REAR DOOR LH

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

One (1)

Y__N__

GLASS SIDE MID RH

The cab shall include a window on the officer's side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

One (1)

Y__N__

GLASS TINT SIDE MID RH

The window located on the right hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

One (1)

Y__N__

GLASS SIDE MID LH

The cab shall include a window on the driver's side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

One (1)

Y__N__

GLASS TINT SIDE MID LH

The window located on the left hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

One (1)

Y__N__

CLIMATE CONTROL

The cab shall be equipped with a ceiling mounted combination defrost / heating and air-conditioning system mounted above the engine tunnel in a central location.

The system shall offer sixteen (16) adjustable louvers. Six (6) of the louvers shall face forward towards the windshield, offering 45,000 BTU of heat at 320 CFM for defrosting. The system shall include six (6) rearward facing louvers to direct air for the crew area and four (4) for driver and officer comfort. When in "Cabin Mode" the system shall be designed to produce 60,000 BTU of heat and 32,000 BTU of cooling. The HVAC cover shall be made of ABS plastic.

All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.

The air conditioning system shall be capable of lowering the cab interior temperature from 100 degrees to 70 degrees within thirty minutes, with a relative humidity of sixty percent.

The air conditioner lines shall be a mixture of custom bent zinc coated steel fittings and Aero-quip GH 134 flexible hose with Aero-Quip EZ-Clip fittings.

One (1)

Y__N__

CLIMATE CONTROL ACTIVATION

The heating controls, and air conditioning if included, shall be located on the dash next to the driver panel, in a position which is easily accessible to the driver.

One (1)

Y__N__

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed on driver's side of the cab, mid-roof.

One (1)

Y__N__

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

One (1)

Y__N__

CAB INSULATION

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall include a foil facing which includes grid reinforcement. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

One (1)

Y__N__

UNDER CAB INSULATION

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

The foam insulation shall measure .56 inch thick including a 1.0#/sf PVC barrier and a moisture and heat reflective foil backing, reinforced with fiberglass strands. The foil surface acts as protection against moisture and other contaminants.

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

The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.

The foam shall meet or exceed MVSS 302 flammability test.

The foam shall be cut precisely to fit each section and sealed for additional heat and sound deflection.

One (1)

Y__N__

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch sound absorbing closed cell foam and a 0.06 inch non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive with aluminum corner trim. All exposed seams shall be sealed with a silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

One (1)

Y__N__

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray or black in color.

One (1)

Y__N__

INTERIOR TRIM VINYL

The cab interior shall include trim on the front and rear crew ceiling, the cab walls and the rear wall of the cab. The trim shall be constructed of insulated vinyl over a hard board backing. The trim shall be securely fastened to the interior of the cab utilizing snap style fasteners with a decorative cover for a more appealing appearance.

One (1)

Y__N__

INTERIOR TRIM VINYL COLOR

The cab interior vinyl trim surfaces shall be gray or black in color.

One (1)

Y__N__

INTERIOR ABS TRIM COLOR

The cab interior vacuum formed ABS composite trim surfaces shall be gray or black in color.

One (1)

Y__N__

HEADER TRIM

The cab interior shall include a header over the driver and officer dash which shall be vacuum formed ABS composite panel with robust styling grooves providing structural integrity. The header shall include (2) vents within the header which are directed at the windshield. Also included will be a drop down panel for access behind the header for service of electronic components, if necessary. The header shall include (2) cut outs, (1) over the driver and (1) over the officer to accommodate speakers and molded areas to accommodate the sun visors.

One (1)

Y__N__

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

One (1)

Y__N__

TRIM LH DASH

The left hand dash shall be a one (1) piece durable vacuum formed ABS composite housing which shall be custom molded for a perfect fit around the instrument panel and the lower control panels to the left and right of the steering column.

One (1)

Y__N__

TRIM CENTER DASH

The main center dash area shall be constructed of durable vacuum formed ABS composite.

One (1)

Y__N__

TRIM RH DASH

The right hand dash trim shall consist of a vacuum formed ABS composite module, which contains a glove compartment with a hinged locking door and a Mobile Data Terminal (MDT) provision. The glove compartment size shall be 13.50 inches wide X 6.25 inches high X 5.50 inches deep. The MDT provision shall be provided above the glove compartment, recessed approximately 3.35 inches below the surface of the dash and measure 13.70 inches wide X 9.70 inches deep.

One (1)

Y__N__

CAB PAINT INTERIOR

The interior metal surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

One (1)

Y__N__

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered by a vacuum formed ABS, a rigid thermoplastic composite material panel with robust styling contours to provide high impact strength and structural integrity. The ABS tunnel shall include 0.19 inch thick fiberglass reinforcement. The cover shall be tapered on the sides offering the maximum amount of hip and elbow room for the driver and officer.

One (1)

Y__N__

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of 14 gauge 304 stainless steel with indented perforations. The perforations shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 7 mirror finish. The lower step shall be

mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed in .084 inch thick 3003-H22 embossed aluminum tread plate.

One (1)

Y__N__

INTERIOR DOOR TRIM

The doors of the cab shall include an aluminum plate the same weight and grade as the cab on the interior of the door. The aluminum shall be then painted.

One (1)

Y__N__

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

One (1)

Y__N__

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for the Sedro-Woolley Fire Department.

One (1)

Y__N__

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape that measures 1.00 inch in width shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

One (1)

Y__N__

INTERIOR GRAB HANDLE "A" PILLAR

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab.

One (1)

Y__N__

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish and provide ease of access and exiting the cab.

One (1)

Y__N__

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door the full width of the door below the window glass and shall measure 30 inches in length. The handle shall assist personnel in exiting and entering the cab.

One (1)

Y__N__

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

One (1)

Y__N__

SWITCHES CENTER PANEL

The center dash panel shall include six (6) switch positions in the upper left portion of the panel.

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

One (1)

Y__N__

SWITCHES LEFT PANEL

The left dash panel shall include seven (7) switches. There shall be five (5) switches across the top of the panel and two (2) staggered on the left hand portion of the panel. Four (4) of the top row of switches shall be rocker type and the left one (1) shall be the headlight switch. The remaining switches shall consist of one (1) windshield wiper/washer control switch and one (1) instrument lamp dimmer switch.

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

One (1)

Y__N__

SWITCHES RIGHT PANEL

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

One (1)

Y__N__

SWITCH PANEL IGNITION

The vehicle shall be equipped with a keyless ignition and master, with an “Off/ On” and a two switch for “Off/ Start”.

One (1)

Y__N__

SEAT BELT WARNING

A Class One seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide visual and audible warning when any seat is occupied (sixty pounds minimum), the corresponding seat belt remains unfastened, and the park brake is released.

Once activated, the visual and audible indicators shall remain active until all occupied seats have the seat belts fastened. The instrument panel shall include an indicator display showing the occupancy of each seat.

One (1)

Y__N__

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.

One (1)

Y__N__

SEAT COLOR

All seats supplied with the chassis shall be gray or black in color.

One (1)

Y__N__

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom Firefighter Sierra model seat or equal. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

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

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

One (1)

Y__N__

SEAT BACK DRIVER

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

One (1)

Y__N__

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom Firefighter series or equal. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

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

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

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

One (1)

Y__N__

SEAT BACK OFFICER

The officer's seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store all U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable with all adjustment points using similar hardware and adjustments 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 taken in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed 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™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

One (1)

Y__N__

POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

One (1)

Y__N__

SEAT REAR FACING OUTER LOCATION

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the driver seat and one (1) located directly behind the officer seat.

One (1)

Y__N__

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

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

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

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

One (1)

Y__N__

SEAT BACK REAR FACING OUTER

The rear facing outboard seat shall feature a Bostrom SecureAll™ SCBA locking system which shall store all U.S. and International SCBA brands and bottle sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable at all adjustment points with one tool.

The bracket system shall be free of straps, that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA bottle in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed 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™ shall include a release handle which shall be integrated into the center of the bottom seat cushion for easy access and to eliminate hooking the release handle with clothing or other equipment.

One (1)

Y__N__

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seat shall be mounted facing the rear of the cab.

One (1)

Y__N__

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

One (1)

Y__N__

SEAT FORWARD FACING CENTER LOCATION

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

One (1)

Y__N__

SEAT CREW FORWARD FACING CENTER

The crew area shall include a seat in the forward facing center position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

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

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

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

One (1)

Y__N__

SEAT BACK FORWARD FACING CENTER

The forward facing center seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store all U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable with all adjustment points using similar hardware and adjustments 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 taken in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed 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™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

One (1)

Y__N__

SEAT MOUNTING FORWARD FACING CENTER

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

One (1)

Y__N__

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame which is located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of 5052-H32 Marine Grade, .190 inch thick, 100 percent primary smooth aluminum plate. The seat box shall be painted with the same color as the remaining interior.

One (1)

Y__N__

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height.

One (1)

Y__N__

CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.

One (1)

Y__N__

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment doors shall be painted interior cab color.

One (1)

Y__N__

WINDSHIELD WIPER SYSTEM

The cab shall include a parallel arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a rod style arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

One (1)

Y__N__

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

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

One (1)

Y__N__

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be FRP composite with a black matt finish. All doors shall include keyed alike locks that are designed to prevent accidental lockout.

The interior latches shall be black flush paddle type, which are incorporated into an upper door panel.

One (1)

Y__N__

DOOR LOCKS

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

One (1)

Y__N__

GRAB HANDLES

The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of 14 gauge 304- stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

One (1)

Y__N__

REARVIEW MIRRORS

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

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

The flat mirrors shall be remotely adjustable vertically and horizontally via four way actuation switches. The control switches shall be mounted in the cab with in easy reach of the driver.

One (1)

Y__N__

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. The two-piece liners shall consist of an inner liner 16" wide made of vacuum formed ABS composite and an outer fenderette 3.50" wide made of 12 gauge polished aluminum.

One (1)

Y__N__

IGNITION

The master starting system, ignition system shall include chrome thumb turn switch which shall be mounted on the driver side of the cab to the left of the steering wheel on the dash. Each switch will be accompanied by (1) green LED indication light which shall light when the ignition is in the "ON" position and (1) for the master battery switch when in the "ON" position. The thumb turn switches shall also be accompanied by a chrome push button which shall only operate when both the master battery and ignition thumb switches are in the "ON" position.

One (1)

Y__N__

BATTERY

The single start electrical system shall include (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.

One (1)

Y__N__

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

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

One (1)

Y__N__

BATTERY CABLE

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

One (1)

Y__N__

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

One (1)

Y__N__

ALTERNATOR

The starting system shall include a 270 amp Leece Neville 12 volt alternator. The alternator shall include a self-excited integral regulator.

One (1)

Y__N__

HEADLIGHTS

A headlamp and combination side marker/turn lamp module shall be part of the front cab fascia. This combination shall include two (2) rectangular halogen High/Low beam headlamps with integrated side marker/turn signal lamps. The headlamps shall be equipped with a "Daytime Running" light feature, which will illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released.

The headlights shall be controlled through a rocker switch on the driver's dash.

One (1)

Y__N__

FRONT TURN SIGNALS

The headlamp assembly shall include a turn signal and side marker lamp combination within the same module. This light assembly shall be LED and amber in color and shall have a visibility radius of 125 degrees.

One (1)

Y__N__

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab either side of the grille above the bumper apron.

One (1)

Y__N__

SIDE TURN/MARKER LIGHTS

The headlight module shall include two (2) side turn and marker lights which shall be integral with the headlights.

One (1)

Y__N__

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) cab LED marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

One (1)

Y__N__

GROUND LIGHTS

Each door shall include an incandescent NFPA compliant ground lights mounted to the under side of the cab on each side of the driver and officer sides of the cab below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of the respective door as well as rocker switched.

One (1)

Y__N__

STEP LIGHTS

The middle step located at each door shall include a NFPA compliant 4.00” round incandescent light which shall activate with the opening of the respective door.

The lights shall have 21 candle power of illumination and draw 1.5 amps.

One (1)

Y__N__

ENGINE COMPARTMENT LIGHT

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

One (1)

Y__N__

INTERIOR OVERHEAD LIGHTING

The cab shall include a two-section incandescent dome lamp with a red and white lens located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 9.50 inches in length X 5.00 inches in width with a black colored bezel. The white portion of each lamp shall be activated by opening the respective door and both the red and white portions can be activated by individual switches on each lamp.

An additional two-section incandescent red and white lamp shall be provided over the engine tunnel which can be activated by individual switches on the lamp.

One (1)

Y__N__

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a red flashing light, located in the center for greatest visibility. The light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound when a door is open and the parking brake is released.

The light and alarm shall be interlocked for activation when a cab door is not firmly closed, an apparatus cabinet door is not closed and the parking brake is released. The do not move vehicle light shall not come on if the interior overhead lights are switched on while moving.

One (1)

Y__N__

MASTER WARNING SWITCH

The optical warning system shall be controlled by a master switch which shall include all “ON” and all “OFF” capability via a red rocker switch on the main panel. Any warning light switches left in the “ON” position shall activate when the master switch is activated. This switch shall be clearly labeled for identification.

One (1)

Y__N__

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include dual modules containing headlights in the inboard position which shall not be wired.

One (1)

Y__N__

LIGHTBAR PROVISION

There shall be two (2) junction boxes located on the driver and officer's side of the roof with electrical connections for the light bar.

One (1)

Y__N__

LIGHTBAR SWITCH

The light bar shall be controlled through the master warning switch.

One (1)

Y__N__

HORN RING SELECTOR SWITCH

A rocker switch shall be installed in the switch panel between the driver and officer to allow control to either the air horn or the electric horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position which is in accordance with FMVSS requirement.

One (1)

Y__N__

AIR HORN ACTIVATION

The air horn actuation shall be accomplished by the steering wheel horn button and a right side officer's mounted switch, on the officer's side switch panel. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector. There shall be no floor mounted switching.

One (1)

Y__N__

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of not less than 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

One (1)

Y__N__

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1939 data bus to reduce redundant sensors.

The instrument panel shall contain the following gauges:

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) electronic speedometer with an integral LCD odometer/ trip odometer and hour meter shall be included. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 0 to 90 MPH (0 to 140 KPH). The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display up to 9,999.9 miles. The LCD screen shall also be capable of displaying certain diagnostic functions. The hour meter shall display engine hours of operation.

One (1) three function gauge with primary system, secondary system and fuel level shall be included. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. A red indicator light in the gauge shall indicate a low air pressure. The scale on the fuel level gauge shall read from empty to full. A yellow indicator light shall indicate low fuel at the quarter tank level.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter shall be included. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. A red indicator light in the gauge shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 160 to 250 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high coolant temperature. The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high transmission oil temperature. The scale on the voltmeter shall read from 8 to 16 volts. A red indicator light shall indicate high or low system voltage.

The instrument panel shall contain an Enunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

RED LAMPS

Stop Engine - indicates critical engine fault. (5)

Park Brake - indicates park brake is set.

Volts - indicates high or low system voltage. (4)

Low Oil Press - indicates low engine oil pressure. (4)

High Coolant Temp - indicates excessive engine coolant temperature. (4)

High Trans Temp - indicates excessive transmission oil temperature. (4)

Low Air - indicates low air pressure in either system one or system two. (4)

Low Coolant Level - indicates low engine coolant level. (1) (5)

Air Filter - indicates excessive engine air intake restriction. (5)

Brake System Fault – indicates a failure in the brake system (hydraulic brake systems only). (5)

Seat Belt Indicator – indicates when a seat is occupied and corresponding seat belt remains unfastened.

YELLOW LAMPS

Check Engine - indicates engine fault. (5)

Check Trans - indicates transmission fault. (5)

Wait to Start - indicates active engine air preheat cycle. (2) (5)

ABS - indicates anti-lock brake system fault. (5)

Water in Fuel - indicates presence of water in fuel filter. (1) (5)

Check Message Center – indicates there is a fault message present in the LCD digital display.

SRS – indicates a problem in the RollTek supplemental restraint system. (1) (5)

DPF – indicates a restriction of the diesel particulate filter. (3) (5)

HEST – indicates a high exhaust system temperature. (3) (5)

MIL – indicates an engine emission control system fault. (3) (5)

Low Fuel – indicates low fuel. (4)

GREEN LAMPS

Left and Right turn signal indicators.

Aux Brake Active - indicates secondary braking device is active. (1)

High Idle - indicates engine high idle is active. (1)

ATC – indicates low wheel traction for automatic tractions control equipped vehicles, also indicates mud/snow mode is active for ATC system. (1) (5)

OK to Pump – indicates the pump engage conditions have been met. (1)

Pump Engaged – indicates the pump is currently in use. (1)

BLUE LAMPS

High beam indicator.

The instrumentation system shall provide a constant audible alarm for the following situations:

Low air pressure.

Low engine oil pressure.

High engine coolant temperature.

High transmission oil temperature.

Low coolant level. (1)

High or low system voltage

Critical engine fault (Stop Engine).

The Check Message Center icon will illuminate and a message will be displayed in the LCD screen for the following situations:

Cab Ajar

Low Oil Level

Door Ajar

Engine Communication Error

Transmission Communication Error

ABS Communication Error

High Coolant Temp

Turn Signal Reminder (turn signal left on for more than one (1) mile)

Low Fuel

Low Oil Pressure

Low Coolant Level

Low Battery Voltage

High Battery Voltage

Low Primary Air Pressure

Low Secondary Air Pressure

High Trans Temp

The instrumentation system will provide a continuous alarm for the following situations:

Stop Engine

Low Coolant Level (1)

Brake System Fault

Check Trans

Check Engine

ABS

Engine Communications Error

Transmission Communications Error

ABS Communications Error

Low Fuel

Low Primary Air Pressure

Low Secondary Air Pressure

Low or High Battery Voltage

High Trans Temp
Low Oil Pressure
High Coolant Temp

The instrumentation system will provide a 160 millisecond second alarm every 880 milliseconds for the following situations:

Seat Belt
Air Filter
Water in Fuel (1)
Cab Ajar
Low Oil Level
Door Ajar

The instrumentation system will provide a 160 millisecond second alarm every 5 seconds for the following situation:

Turn Signal Reminder (turn signal left on for more than one (1) mile)

- (1) Feature only available when optionally equipped.
- (2) Feature only available on engines with pre-heat capability.
- (3) Feature only on vehicles with diesel particulate filter (DPF).
- (4) Warning light is present in gauge.
- (5) A message in the LCD screen will also be displayed.

One (1)

Y__N__

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

One (1)

Y__N__

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

One (1)

Y__N__

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

One (1)

Y__N__

AS BUILT WIRING DIAGRAMS

The cab and chassis shall include one (1) complete set of wiring schematics and option wiring diagrams.

One (1)

Y__N__

WARRANTY - CAB AND CHASSIS

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twelve (12) months, or the first 24,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the end user. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

One (1)

Y__N__

OPERATORS AND PARTS LIST MANUAL

There shall be one (1) chassis operator's manual which includes a parts list. Also, wiring and air plumbing diagrams shall be provided as well as a list of any parts or equipment that is shipped loose with the vehicle. All standard wiring and plumbing diagrams shall be created specifically to the chassis model.

One (1)

Y__N__

ENGINE AND TRANSMISSION OPERATION MANUALS

There shall be one (1) set of engine operation and maintenance manuals and one (1) set of transmission operation manuals specific to the models ordered included with the final vehicle in the ship loose items.

One (1)

Y__N__

BUMPER TO BUMPER WARRANTY

The new motorized fire apparatus manufactured shall be warranted for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein.

One (1)

Y__N__

ALUMINUM BODY WARRANTY - FIVE YEAR

The all aluminum body, fabricated, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for a period of FIVE (5) years.

One (1)

Y__N__

GALVANIZED SUBFRAME WARRANTY

The new hot dip galvanized body subframe (exclusive of paint finish and hardware) is structurally sound and free of all structural defects of both material and workmanship and further warrants that it will maintain such structural integrity for the duration of ownership by the original purchaser. This warranty terminates upon transfer of possession or ownership by original purchaser.

One (1)

Y__N__

PAINT WARRANTY FIVE YEAR

The PPG paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of FIVE (5) years beginning the day the vehicle is delivered to the purchaser.

One (1)

Y__N__

PUMP WARRANTY

All pump products and parts shall be warranted to be free from defects in material and workmanship under normal use and service for a period of five (5) years from the date the product is first placed in service.

One (1)

Y__N__

STAINLESS STEEL PLUMBING WARRANTY

The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of the delivery and shall terminate upon the transfer of possession or ownership by original purchaser.

One (1)

Y__N__

COMPLETE PRINTED MANUAL

THE BODY BUILDER shall provide with the vehicle upon delivery, one (1) complete delivery manual. This manual shall be in a notebook type binder, with reference tabs for each section of the vehicle. A companion compact disk (CD) with all of the printed material in an electronic format (Adobe Acrobat PDF) shall be provided.

Within each section shall be:

1. Individual component manufacturer instruction and parts manuals
2. Warranty forms for the body
3. Warranty forms for all major components
4. Warranty instructions and format to be used in compliance with warranty obligations
5. Wiring diagrams
6. Installation instruction and drawings for major parts
7. Visual graphics and electronic photos for the installation of major parts
8. Necessary normal routine service forms, publications and components of the body portion of the apparatus
9. Technical publications for training and instruction on major body components
10. Warning and safety related notices for personnel protection
11. Cab and chassis manuals on parts, service and maintenance shall be provided

One (1)

Y__N__

"ON-LINE" SERVICE MANUAL SUPPORT

It is desirable that the vehicle body builder supply on-line support

As part of the standard delivery manual, **THE BODY BUILDER** shall give a password-protected link to the end user, allowing access to the manufacturers' database on service parts. The internet-based system shall allow the end user to access the major component supplier's service parts listing such as Hale, Waterous, Akron, etc. This shall be accomplished with simplistic point and click features on the manufacturer line item within the "stripper" or "line item sheet". This will include, automatic updates, printable schematics and manufacturer's web links and is available in the commercially available format of Adobe Acrobat Reader to access these documents. The body builder America, LLC shall submit with the bid proposal, a sample set of on line Adobe formatted material that has been printed from the manufacturers website.

Parts Listings within Manuals

The manuals will include cross-reference part numbers from the **THE BODY BUILDER** part number to the vendor parts. This will allow for reference between individual parts and complete installation assemblies as completed by the body builder. The manuals will list all components of the vehicle that includes a vendor part utilized in a complete installation via the manufacturers "line item sheet" or "stripper" utilized to manufacture the completed vehicle. These are "As Built" and proposals with "typical" or "generic" manuals will be rejected.

Illustrative Schematics within Manuals

THE BODY BUILDER shall include installation diagrams and drawings of all major sub assemblies. This will include components such as hydraulic ladder rack assemblies, pump panels, tanks, fire pumps, etc. The drawings shall be linked via an Internet based service program, in an electronic format from the manufacturers "stripper" (line item listing) of the manufacturing document. **THE BODY BUILDER** shall submit, upon request, a sample schematic.

Digital Images within Manuals

In addition to two and three-dimensional installation drawings, **THE BODY BUILDER** shall make accessible, via an internet based link, the actual photos of the installed components listed within the "stripper" or line sheet. This will include, but not limited to wiring terminals, main body distribution strips, fire pump shifting, auxiliary components, etc. **THE BODY BUILDER** shall submit a sample of these upon request.

Installation Instructions within Manuals

THE BODY BUILDER "work instructions" or "installation instructions" shall be included with the service manuals. These documents shall be accessible via a web-based link to the individual vehicle manufactured. The work instructions shall give systematic instructions of the component installation process. **THE BODY BUILDER** shall submit, upon request, a sample set of instructions.

Automatic Updates of Manuals and Parts Listings

The online manuals will include automatic updates that are accessible via the web link. When clicking on the part within the manufacturer's stripper or line sheet, it will allow the end user to access the component manufacturer website for updated information. This will allow for latest parts and service components from the individual part manufacturer or vendor.

Electrical Schematics

To maintain the vehicles electrical systems, the manufacturer shall provide to the purchaser the instructional manuals, complete electrical information and schematics on the vehicle. The electrical information shall be provided as follows:

Wiring Systems 12 and 120 Volt:

1. Graphic symbols for electrical diagrams.
2. Wire labeling, imprinting codes and index.
3. Computer generated electrical schematics indicating the circuit number, wire size, switches, circuit breaker and terminals on the vehicle.

THE BODY BUILDER shall submit, upon request, a sample set of diagrams.

One (1)

Y__N__

FLUID DATA PLAQUE

One (1) fluid data plaque containing required information shall be provided based on the applicable components for this apparatus, compliant with NFPA Standards:

1. Engine oil
2. Engine coolant
3. Chassis transmission fluid
4. Drive axle lubricant
5. Power steering fluid
6. Pump transmission lubrication fluid
7. Paint manufacturer and color numbers
8. Other NFPA applicable fluid levels or data as required

Location shall be in the driver's compartment or on driver's door.

One (1)

Y__N__

APPARATUS DIMENSION DATA

One (1) highly visible label indicating the overall height, length, width and weight of the vehicle shall be installed in the cab dash area.

One (1)

Y__N__

NO RIDE LABEL

One (1) "NO RIDERS" label shall be applied on the vehicle at the rear step area or other applicable areas. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion is prohibited.

One (1)

Y__N__

CAB SEATING POSITION LIMITS

One (1) label shall be installed in the cab to indicate seating positions for firefighters. A weight allowance of 250 pounds for each shall be factored into the gross vehicle weight rating of the chassis.

One (1)

Y__N__

HELMET WARNING TAG

One (1) label shall be installed in the cab, visible from each seating position. The label shall read "DO NOT STORE HELMETS IN CAB WHILE VEHICLE IS IN MOTION." Helmets must be stored in a body compartment.

One (1)

Y__N__

REAR TOWING PROVISIONS

There shall be two tow eyes furnished under the rear of the body and attached directly to each chassis frame rail. There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

One (1)

Y__N__

TOW PLATE PAINTING

The tow plates shall be painted black.

One (1)

Y__N__

FRONT BUMPER GRAVELSHIELD

An 21" front to rear filler panel constructed from NFPA compliant, slip resistant aluminum tread plate shall be provided on the front chassis frame extension. The extension shall be covered on the top and sides, up to the level of front bumper and shall be reinforced to support one (1) firefighter (approximately 250 pounds) and the equipment specified to be installed.

One (1)

Y__N__

FRONT BUMPER COMPARTMENT

One (1) recessed fire hose compartment constructed from smooth aluminum shall be installed in the center of the front bumper extension. Water drain holes shall be drilled in the bottom.

The compartment shall be large enough to hold 150-ft of 1-3/4-in hose.

One (1)

Y__N__

BUMPER COMPARTMENT DOOR

The center section of the front bumper shall be cleanly and precisely cut out. This section shall then be re-attached with a heavy duty, stainless steel piano hinge at the bottom, and two latches shall be installed to hold the center section in the closed position. An aluminum tread plate top cover for the center front bumper compartment shall be supplied. The top cover shall have a heavy duty stainless steel hinge at the rear and a hold open device. When the center hinged section of the front bumper is released, the top cover may be opened. The front bumper extension assembly shall be adequately re-enforced to accommodate the hinged front face bumper compartment door.

One (1)

Y__N__

TIRE PRESSURE INDICATOR

There shall be a tire pressure indicator at each tire's valve stem on the vehicle that shall indicate if there is insufficient pressure in the specific tire. The indicator shall be chrome plated brass with an LED light indicator.

One (1)

Y__N__

EXHAUST SYSTEM

The chassis exhaust shall be modified and redirected to the right side of the apparatus and will exit ahead of the rear wheel.

One (1)

Y__N__

EXHAUST HEAT SHIELD

A heat shield shall be installed under the body in the areas where the exhaust system is routed.

One (1)

Y__N__

REAR MUD FLAPS

One (1) pair of black mud flaps shall be installed behind the rear wheels.

WATEROUS CSUC10 SINGLE STAGE PUMP OR EQUAL

A Waterous model CSUC10, single stage centrifugal pump shall be designed to mount on the chassis frame rails and shall be split-drive shaft driven. The pump casing shall be of high-tensile, close-grained gray iron. Pump body shall be horizontally split in two (2) sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing the mounting or piping.

Impeller

A matched bronze impeller specifically designed for the fire service will be provided. It will be accurately balanced both mechanically and hydraulically, for vibration-free operation. The impeller shaft shall be stainless steel, heat-treated and precisely ground to size. It shall be supported on both ends by oil or grease lubricated ball bearings.

Replaceable wear rings, bronze, reverse-flow, labyrinth-type shall be provided. Three (3) deep groove ball bearings shall be located outside the pump to give rugged support and proper alignment to the impeller shaft. The bearings shall be oil or grease lubricated. All bearings shall be completely separated from the water being pumped.

Pump Transmission

The housing shall be constructed of high tensile aluminum and be of three (3) piece, horizontally split design. The transmission driveline shafts shall be made from alloy steel forging, hardened and ground to size. The drive and driven sprockets shall be made of steel and shall be carbonized and hardened. The drive chain shall be Morse HV involute form chain. The lubrication system shall be an impeller shaft driven oil pump to deliver oil to an integral spray header, to completely pressure lubricate the drive chain.

Pump Grease Fitting

A pump bearing grease fitting shall be provided in the pump enclosure. Fitting shall have a protective dust cap and shall be properly labeled.

Pump Mounting

The pump shall be bolted to steel angles in pump module, using grade 8 bolts.

Drive Line

Hollow-tube drivelines and universals shall be properly matched to the engine and transmission output torque ratings.

2000 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Waterous model CSUC10 midship mounted with a rated capacity of 2000 GPM. The pump shall meet NFPA 1901 requirements.

The pump shall be certified to meet the following deliveries:

- 2000 GPM @ 150 PSI
- 2000 GPM @ 165 PSI
- 1400 GPM @ 200 PSI
- 1000 GPM @ 250 PSI

One (1)

Y__N__

LEFT SIDE -- 6" UNGATED INTAKE

One (1) 6" un gated suction intake shall be installed on the left side pump panel to supply the fire pump from an external water supply. The threads shall be 6" NST. The intake shall be provided with a removable screen.

One (1)

Y__N__

One (1) 6" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

One (1)

Y__N__

RIGHT SIDE -- 6" GATED INTAKE

One (1) 6" gated suction intake shall be installed on the right side pump panel to supply the fire pump from an external water supply. The intake shall be provided with a removable screen and the intake shall be operated with a slow close valve located behind the pump panel.

One (1)

Y__N__

One (1) 5" Storz fitting with a cap and with a chrome 30 degree elbow shall be provided.

One (1)

Y__N__

FIRE PUMP MECHANICAL SHAFT SEAL

The Waterous fire pump shall be equipped with self-adjusting, maintenance free, 'mechanical shaft seal' which is designed to be functional in the unlikely event of a seal failure.

One (1)

Y__N__

IMPELLER HUBS

The Waterous fire pump impeller hubs shall be "Flame Plated", impregnated with tungsten carbide to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

One (1)

Y__N__

FIRE PUMP SHIFT

The fire pump shift shall be air-operated incorporating an air cylinder with an electrically actuated pneumatic switch to shift from ROAD to PUMP and back. The fire pump shift control switch and valve shall be mounted in the cab.

The fire pump shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position. The system shall include a nameplate indicating the chassis transmission shift selector position to be used for pumping and located so that it can be easily read from the driver's position.

The system shall include the applicable NFPA standard interlocks, pump shift and OK TO PUMP indicator lights in the cab and pump panel. The fire pump shift system shall be equipped with an interlock system to ensure that the pump drive system components are properly engaged in the pumping mode of operation so the pumping system can be safely operated from the pump operator's position.

If applicable, the secondary braking device shall be automatically disengaged for pumping operations.

FIRE PUMP PRIMING SYSTEM

A Waterous model number VPO electrically driven, positive displacement, rotary vane type 'oil less' priming pump shall be installed. The system shall be activated with a push button type control.

The pump shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. The priming system shall comply to applicable sections of the NFPA standards.

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING

One (1) Fire Research In-Control series TGA300 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- 1) Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- 2) Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- 3) Pressure / RPM setting; shown on a dot matrix message display
- 4) Pressure and RPM operating mode LEDs
- 5) Throttle ready LED
- 6) Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- 7) Check engine and stop engine warning LEDs
- 8) Oil pressure; shown on a dual color (green/red) LED bar graph display
- 9) Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- 10) Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- 11) Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix 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. All LED intensity shall be automatically adjusted for day and night time 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 panel. There shall be an USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The 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 LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the 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 governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine.

One (1)

Y__N__

PUMP ANODES

One (1) pair of replaceable corrosion-protection anodes shall be provided, one (1) on the discharge and one (1) on the intake side of the pump.

One (1)

Y__N__

PUMP PLUMBING SYSTEM

The fire pump plumbing system shall be of rigid stainless steel pipe or flexible piping with stainless steel fittings. Mechanical grooved couplings shall be installed to permit flexing of the plumbing system and allow for quick removal of piping or valves for service. Flexible hose couplings shall be threaded stainless steel or mechanical grooved coupling connections.

The fire pump and plumbing shall be hydrostatically tested in compliance to applicable sections of NFPA standards. The test results shall be included in the delivery documentation.

One (1)

Y__N__

FIRE PUMP MASTER DRAIN

The fire pump plumbing system and fire pump shall be piped to a single push-pull type master pump drain assembly.

One (1)

Y__N__

ADDITIONAL LOW POINT DRAINS

The plumbing system shall be equipped with additional low point manually operated drain valves to allow total draining of the fire pump plumbing system. These valves shall be accessible from the side of the vehicle and labeled.

One (1)

Y__N__

FIRE PUMP & PLUMBING SYSTEM PAINTING

The fire pump and plumbing system shall be painted by the fire apparatus manufacturer. The fire pump and the plumbing shall be painted metallic silver.

One (1)

Y__N__

HOSE THREADS

The hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intakes and discharges.

One (1)

Y__N__

WATER TANK TO PUMP LINE

One (1) 3" water tank to fire pump line shall be provided with a full flow quarter turn ball valve, 4" piping, and with flex hose and stainless steel hose clamps. The tank to pump line shall be equipped with a check valve to prevent pressurization of the water tank.

The line shall be flow tested during the fire pump testing and shall meet applicable requirements of NFPA standards.

One (1)

Y__N__

The specified valve shall be an Akron 8800 Series three-inch (3") valve with a stainless ball.

One (1)

Y__N__

One (1) Akron valve equipped with a manually operated pull rod, with quarter turn locking feature shall be provided on the specified intake. The handle shall be equipped with color coded engraved type name plate.

One (1)

Y__N__

FIRE PUMP TO WATER TANK FILL LINE

One (1) 1-1/2" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 1-1/2" piping and flex hose to tank. The valve control handle shall have a nameplate located near the valve control.

One (1)

Y__N__

The specified valve shall be an Akron 8800 Series one and one half-inch (1-1/2") valve with a stainless ball.

One (1)

Y__N__

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1)

Y__N__

FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION

The mid-ship split shaft fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. The drive shaft(s) shall be spin balanced prior to final installation.

One (1)

Y__N__

UNDERWRITERS LABORATORIES FIRE PUMP TEST

The pump shall undergo an Underwriters Laboratories Incorporated test per applicable sections of NFPA standards, prior to delivery of the completed apparatus.

The UL acceptance certificate shall be furnished with the apparatus on delivery.

One (1)

Y__N__

FIRE PUMP TEST LABEL

A fire pump performance and rating label shall be install on the fire apparatus pump panel. The label shall denote levels of pump performance and testing completed at factory. These shall include GPM at net pump pressure, RPM at such level, and other pertinent data as required by applicable NFPA standards. In addition, the pressure control device, tank to pump flow tests, and other required testing shall be completed.

In addition, the entire pump, suction and discharge passages shall be hydrostatically tested to a pressure as required by applicable NFPA standards. The pump shall be fully tested at the pump manufacturer's factory to the performance specifications as outlined by applicable NFPA standards. Pump shall be free from objectionable pulsation and vibration.

If applicable, the fire pump shall be tested and rated as follows:

- 100% of rated capacity at 150 pounds net pressure.
- 70% of rated capacity at 200 pounds net pressure.
- 50% of rated capacity at 250 pounds net pressure.
- 100% or rated capacity at 165 pounds net pressure.

One (1)

Y__N__

INTAKE RELIEF/DUMP VALVE

One (1) Elkhart Model 40, 2-1/2" intake relief/dump valve preset at 125 psi shall be permanently installed on the suction side of the fire pump. The valve shall have an adjustment range of 75 psi to 250 psi, and shall be designed to automatically self-restore to a non-relieving position when excessive pressure is no longer present.

Discharge side of the intake relief valve shall be plumbed to the side the apparatus, away from the pump operator, and shall terminate with a 2-1/2" NST male thread. The outlet shall be marked with an engraved tag "Intake pressure relief outlet - Do Not Cap".

One (1)

Y__N__

FIRE PUMP COOLING

The fire pump shall be equipped with 3/8" cooling line from the pump to the water tank. This re-circulation line shall be controlled by a pump panel control valve with nameplate label noting it as the "fire pump bypass cooler". There shall be a check valve installed in the pump cooler line to prevent tank water from back flowing into the pump when it is not in use.

One (1)

Y__N__

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually opened valve, mounted at the operator's panel, shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator cooling hose. The system shall provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant. The

unit shall be installed by the chassis manufacturer and connected to the plumbing system by the fire apparatus manufacturer.

A nameplate label shall be installed on the pump panel noting "engine cooling system" with "on-off" opening directions noted.

One (1)

Y__N__

LEFT SIDE -- 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on left side pump panel to supply the fire pump from an external water supply. The control valve shall be a quarter turn ball valve and shall have 2-1/2" NST female thread of chrome plated brass.

The intake shall be equipped with a 3/4" drain and bleeder valve. A nameplate label and removable screen shall be installed.

One (1)

Y__N__

One (1) 2-1/2" chrome plated plug shall be provided. The threads shall be NST and the plug shall be equipped rocker lugs and chain or cable securement.

One (1)

Y__N__

The specified valve shall be an Akron 8800 Series two and one half-inch (2-1/2") valve with a stainless ball.

One (1)

Y__N__

The specified intake valve shall be equipped with one (1) manually operated swing type manual control located adjacent the intake. The valve shall be equipped with a color coded engraved type name plate.

One (1)

Y__N__

2" DISCHARGE FRONT CENTER BUMPER

One (1) 2" quarter turn ball valve discharge shall be installed at front center bumper area with stainless steel or brass swivel outlet with 1-1/2" NST male threads. The valve control shall be on pump panel and a nameplate label provided at valve control area.

The plumbing shall be flexible hose with abrasion resistant support mountings. Auxiliary low point drains shall be provided on the discharge line.

One (1)

Y__N__

A Class 1 automatic type 3/4" bleeder valve shall be installed on discharges larger than 1-1/2" in size.

One (1)

Y__N__

Note: the hose connection for the front discharge shall be within the front bumper compartment.

One (1)

Y__N__

The specified valve shall be an Akron 8800 Series two-inch (2") valve with a stainless ball.

One (1)

Y__N__

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate

valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1)

One (1) 2-1/2" pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The face of the gauge shall have a white dial with black letters.

Y__N__

One (1)

Crosslay hosebed(s) shall be mounted over the upper pump panel or gauge panel in the upper portion of the pump enclosure. The crosslay hosebed shall be approximately 12" from the top of the pump enclosure.

Y__N__

One (1)

TWO (2) 1-1/2" CROSSLAY DISCHARGES

Two (2) pre-connect 1-3/4" hose crosslays shall be installed over pump enclosure, with quarter turn 2" diameter ball valves. The outlets shall be a 2" NPT female swivel x 1-1/2" male NST hose threads.

Y__N__

The crosslay hosebeds shall have smooth aluminum sides. The hosebed decking shall be constructed with slots integrated into the hosebed floor.

Each hosebed shall provide for a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with nozzle, for hose provided by the fire department.

Two (2)

A Class 1 automatic type 3/4" bleeder valve shall be installed on discharges larger than 1-1/2" in size.

Y__N__

Two (2)

The specified valve shall be an Akron 8800 Series two-inch (2") valve with a stainless ball.

Y__N__

Two (2)

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

Y__N__

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

Two (2)

Two (2) 2-1/2" pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The face of the gauge shall have a white dial with black letters.

Y__N__

One (1)

Y__N__

CROSSLAY HINGED COVER WITH END FLAPS

The crosslay hosebed shall be equipped with a single aluminum diamond plate hinged cover with vinyl end flaps with hook & loop fasteners. The cover shall have rubber bumpers, latching devices, and lift up handle on each end of the cover.

Two (2)

Y__N__

LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

Two (2) 2-1/2" discharge shall be installed on the left side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

Two (2)

Y__N__

A 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size.

Two (2)

Y__N__

Two (2) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

Two (2)

Y__N__

Two (2) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

Two (2)

Y__N__

The specified valve shall be an Akron 8800 Series two and one half-inch (2-1/2") valve with a stainless ball.

Two (2)

Y__N__

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

Two (2)

Y__N__

Two (2) 2-1/2" pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The face of the gauge shall have a white dial with black letters.

One (1)

Y__N__

RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

- One (1) A 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size. Y__N__
- One (1) One (1) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads. Y__N__
- One (1) One (1) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided. Y__N__
- One (1) The specified valve shall be an Akron 8800 Series two and one half-inch (2-1/2") valve with a stainless ball. Y__N__
- One (1) For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation. Y__N__
- The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.
- One (1) One (1) 2-1/2" pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The face of the gauge shall have a white dial with black letters. Y__N__
- One (1) Y__N__
- RIGHT SIDE PUMP PANEL -- 3" DISCHARGE**
- One (1) 3" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 3" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.
- One (1) A 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size. Y__N__
- One (1) One (1) lightweight aluminum elbow with 30 degree slant and bright finish shall be provided. Threads shall be 5" Storz with lugs and manual locks x 3" female swivel NST with rocker lugs. Y__N__
- One (1) One (1) 5" lightweight aluminum Storz cap with cable or chain securement shall be provided. Y__N__
- One (1) The specified valve shall be an Akron 8800 Series three-inch (3") valve with a stainless ball. Y__N__

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter turn locking feature and a manual slow close device shall be provided on the specified discharge. The handle shall be equipped with color coded engraved type name plate.

One (1) Y__N__
One (1) 2-1/2" pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The face of the gauge shall have a white dial with black letters.

One (1) Y__N__
REAR AERIAL INLET AND DISCHARGE

One (1) 3" fire pump discharge shall be piped to the rear of the apparatus with 4" Schedule 40 pipe and controlled with a slow close valve on the pump panel. The 4" rear inlet connection shall provide a dual supply to the aerial device. The rear inlet shall have 4" NST male threads and a 5" storz fitting with cap and a 30 degree turndown elbow with cable or chain securement shall be provided.

There shall be a 1-1/2" drain installed in the rear aerial supply line with control on the rear of the apparatus body. There shall also be an adjustable relief valve installed in the aerial supply line.

A color coded nameplate labels shall be provided at rear and on the pump panel control handle.

One (1) Y__N__
INTAKE RELIEF/DUMP VALVE

One (1) Elkhart Model 40, 2-1/2" intake relief/dump valve preset at 125 psi shall be permanently installed on the suction side of the fire pump. The valve shall have an adjustment range of 75 psi to 250 psi, and shall be designed to automatically self-restore to a non-relieving position when excessive pressure is no longer present.

Discharge side of the intake relief valve shall be plumbed to the side the apparatus, away from the pump operator, and shall terminate with a 2-1/2" NST male thread. The outlet shall be marked with an engraved tag "Intake pressure relief outlet - Do Not Cap".

One (1) Y__N__
A 3/4" quarter turn bleeder valves shall be installed.

One (1) Y__N__
One (1) lightweight aluminum adapter with bright finish shall be provided. Threads shall be: 5" Storz with lugs with manual locks x 4" female swivel NST with rocker lugs.

One (1) Y__N__
One (1) 5" lightweight aluminum Storz cap with cable or chain securement shall be provided.

One (1) Y__N__
The specified valve shall be an Akron 8800 Series three-inch (3") valve with a stainless ball.

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter turn locking feature and a manual slow close device shall be provided on the specified discharge. The handle shall be equipped with color coded engraved type name plate.

One (1)

Y__N__

One (1) 2-1/2" pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The face of the gauge shall have a white dial with black letters.

One (1)

Y__N__

SIDE MOUNT PUMP ENCLOSURE

The side mount pump enclosure shall be removable and supported from the chassis frame rails. This enclosure will allow independent flexing of the pump enclosure from the body and allow for quick removal. The support structure shall be constructed of extruded aluminum tubing and angle.

All pump suction and discharge controls are to be mounted on the driver side pump operator's panel so as to permit operation of the pump from a central location. The fire pump, valves and controls shall be accessible for service and maintenance as required by applicable sections of NFPA standards.

The "master" gauges shall be suitably enclosed and mounted on a full pump compartment width "hinged" gauge panel constructed of the same material as the pump operators control panel, allowing access to the backside of all gauges and gauge lines. The individual gauges shall be mounted inline with the control handle or adjacent to the control handle. Panel is to include a stainless steel piano hinge, flush mounted chrome plated trigger latch, and stainless steel cable end stops. Electrical wiring and all gauge lines shall be properly tie wrapped to prevent kinking or cutting of the lines when the panel is opened.

The following controls and equipment shall be provided on the pump panel or within the pump enclosure:

- 1) Electric primer.
- 2) Pump and plumbing area service lights.
- 3) Pressure control device and throttle control.
- 4) Fire pump and engine instruments.
- 5) Pump intakes and discharge controls.
- 6) Master intake and discharge gauges.
- 7) Tank fill control.
- 8) Tank suction control.
- 9) Water tank level gauge.
- 10) Pump panel lights.

One (1)

Y__N__

LEFT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The left side mount pump panel shall be equipped with side running board. The running board will extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surfaces shall be in compliance to applicable sections of NFPA requirements.

One (1)

Y__N__

PUMP SLIDE OUT STEP -- LEFT SIDE

A slide out step assembly shall be installed on the left side pump panel using roller bearing slide tracks. The step shall be fabricated of slip resistant NFPA compliant grating, and shall extend out approximately 24" and lock in both the in and out positions.

One (1)

Y__N__

RIGHT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The right side mount pump panel shall be equipped with side running board. The running board will extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surfaces shall be in compliance to applicable sections of NFPA requirements.

One (1)

Y__N__

PUMP ENCLOSURE ACCESS DOOR -- LEFT SIDE UPPER

A pump panel access door shall be provided on the upper left side of the side mount pump enclosure. The access door shall be approximately 18" high and as wide as possible. The door shall be constructed of aluminum tread plate with push button type latches.

One (1)

Y__N__

PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER

A pump panel access door shall be provided on the upper right side of the side mount pump enclosure. The access door shall be approximately 18" high and as wide as possible. The door shall be constructed of aluminum tread plate with push button type latches.

One (1)

Y__N__

PUMP PANEL -- SIDE MOUNT

The pump operator's panel, along with the lower left hand and right hand pump panels shall be constructed of black thermoplastic coating aluminum material and be fastened to the pump enclosure with 1/4" stainless steel bolts.

The instrument area shall have a stainless steel continuous hinge that shall swing for easy access to gauges.

One (1)

Y__N__

LEFT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the left hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

One (1)

Y__N__

RIGHT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the right hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

One (1)

Y__N__

LABELS

Safety, information, data, and instruction labels for apparatus shall be provided and installed at the operator's instrument panel.

The labels shall include rated capacities, pressure ratings, and engine speeds as determined by the certification tests. The no-load governed speed of the engine, as stated by the engine manufacturer, shall also be included.

The labels shall be provided with all information and be attached to the apparatus prior to delivery.

One (1)

Y__N__

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards.

Permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

One (1)

Y__N__

MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE

Three (3) Weldon #2025 or equal lights with clear lenses shall be installed under an instrument panel light hood on the left side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

One (1)

Y__N__

MIDSHIP PUMP PANEL LIGHTS -- RIGHT SIDE

Two (2) Weldon #2025 or equal lights with clear lenses shall be installed under an instrument panel light hood on the right side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

One (1)

Y__N__

PUMP PANEL LIGHTS

One (1) pump panel light shall be illuminated at the time the fire pump is engaged into operation. The remaining lights shall be controlled by a switch located on the operator's instrument panel.

One (1)

Y__N__

MASTER DISCHARGE AND INTAKE GAUGES

Two (2) 4" diameter Noshok discharge pressure and intake gauges (30-0-600 PSI) with engraved, color coded labels, shall be provided on the pump instrument panel.

To prevent internal freezing and to keep contaminants from entering the gauge, the stem and tube shall be sealed from the water system using an isolation Sub-Z diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage. The face of the gauge shall be a white dial with black letters.

One (1)

Y__N__

TEST TAPS

Test taps for pump intake and pump pressure shall be provided on the pump instrument panel and be properly labeled.

One (1)

Y__N__

WATER TANK GAUGE

One (1) Fire Research TankVision model WLA200-A00 tank indicator kit shall be installed on the pump panel. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall place on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

One (1)

Y__N__

WATER TANK

The apparatus shall be equipped with a rectangular tank.

One (1)

Y__N__

WATER TANK - 400 GALLON

The apparatus shall be equipped with a four-hundred (400) gallon polypropylene water tank. The tank shall be equipped with a three-inch (3") overflow pipe. The tank body and end bulkheads shall be constructed of .5" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal .375" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The .5" thick cover shall be recessed .375" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

The water fill tower shall be provided at front of the tank. The 0.5" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with schedule 40 PVC pipe through the tank.

The water tank sump shall be located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain

and clean out shall be a 3.0" IPT schedule 80 female flange with plug, located in the bottom of the tank sump.

The pump to tank refill connection shall be a sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

The water tank manufacturer shall certify the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

One (1)

Y__N__

WATER TANK FILL TOWER

A fill tower measuring approximately 10" x 10" square shall be provided on the water tank up to and including 400 gallons total capacity.

One (1)

Y__N__

The apparatus shall be equipped with a polypropylene water tank. The tank body and end bulkheads shall be constructed of .5" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal .375" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The .5" thick cover shall be recessed .375" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

The water fill tower shall be provided at front of the tank. The 0.5" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with schedule 40 PVC pipe through the tank.

The water tank sump shall be located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be located in the bottom of the tank sump.

The pump to tank refill connection shall be a sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

The water tank manufacturer shall certify the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

One (1)

Y__N__

The apparatus shall be equipped with a water tank manufactured by United Plastic Fabricating.

One (1)

Y__N__

WATER TANK WARRANTY

UNITED PLASTIC FABRICATION INC. Warrants each UPF POLY-TANK IIE Booster/Foam tank to be free from manufacturing defects in material and workmanship for the service life of the vehicle (vehicle must be actively used in fire suppression). The UPF POLY-

TANK IIE must be installed in accordance with the United Plastic Fabricating installation manual. Every UPF POLY-TANK IIE is thoroughly inspected and tested for leaks before leaving our facility. Should any problems develop with your UPF POLY-TANK IIE booster/foam tank and will not meet performance criteria during the service life of the vehicle, notify UPF in writing or call our TOLL FREE SERVICE HOT LINE 1-800-USA-POLY. Provide UPF with the serial number and a description of the problem. If the tank problem would render the truck out of service, UPF will dispatch a service technician WITHIN 48 HOURS (2 DAYS) to repair the tank. (This time period is for North America only). If the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period.

We will repair, or at our option, replace the tank with a new UPF POLY-Tank IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK IIE. This warranty will not cover tanks that have been improperly installed, misused or abused, and the serial number must not have been altered, defaced or removed. UPF will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF UNITED PLASTIC FABRICATION, INC.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UNITED PLASTIC FABRICATION, INC. Neither assumes, nor authorizes any person supposing to act on its behalf, to change, nor assume for it, any warranty or liability concerning its product.

IN NO EVENT WILL UNITED PLASTIC FABRICATION, INC BE LIABLE FOR AN AMOUNT IN EXCESS OF THE PRESENT RETAIL, PURCHASE PRICE PLUS INSTALLATION AND REMOVAL COST OF THE BOOSTER TANK, FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE ARISING OUT OF FAILURE OF ITS PRODUCT.

This warranty gives you specific legal rights, and you may have other rights, which vary from state to state. Some states do not allow exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

One (1)

Y__N__

TANDEM AXLE REAR MOUNT AERIAL/PLATFORM BODY

A tandem axle rear mount aerial/platform body shall be provided and constructed as follows:

One (1)

Y__N__

CHASSIS REQUIREMENTS FOR AERIAL APPARATUS

The following items shall be included with the chassis to operate the aerial device:

- Truck chassis with a selectable high idle system. High idle to be set at 1,200 rpm
- A red warning light installed in the driving compartment and visible to the driver to indicate if any outrigger is not in the stowed position.
- There shall be a (hot shift) PTO system mounted to the chassis transmission. The PTO assembly shall supply power to the hydraulic pump for all aerial operations. Electrical

safety wiring shall be installed that requires the transmission be in neutral, or the fire pump engaged and the parking brake set before the PTO will operate.

- A PTO engaged indicator light shall be installed in the cab of the apparatus.

One (1)

Y__N__

BODY BUILDER REQUIREMENTS FOR AERIAL APPARATUS

The following items shall be installed by the body builder for the aerial device:

- Auxiliary outrigger plates, 2 ft. X 2 ft. for each outrigger. Outrigger plates to be installed on heavy aluminum brackets and installed adjacent to each outrigger.
- A preset relief valve capable of protecting the waterway system by relieving pressure through the dumping of water to the environment. Relief valve shall be plumbed to dump excess water below chassis frame.
- A 1-1/2 inch minimum drain valve shall be installed at the low point of the waterway inlet system. Handle to operate drain valve shall be extended to rear of body.
- Reflective striping shall be installed on all stabilizers that protrude beyond the body of the apparatus.
- Warning signs for the aerial and outriggers shall be installed to meet the aerial manufacturer recommendations.
- A leveling bubble shall be installed on the rear of the truck, for side to side leveling.
- A leveling bubble shall be installed at the pump operator's panel, for front to rear leveling.
- There shall be a ladder alignment indicator provided on the turntable to indicate when the ladder is aligned with the travel support and may be lowered into it.

One (1)

Y__N__

1/8" ALUMINUM BODY

The body shall be fabricated of aluminum extrusions, smooth aluminum sheet and aluminum treadplate.

The aluminum extrusion alloy shall be 6061 with a temper rating of T6, and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds. The aluminum extrusions shall 3" x 3" aluminum tubing, 1-3/4" x 3" aluminum tubing and 3" x 3" aluminum angle and specially designed extrusions, up to .250" wall thickness where applicable.

The smooth aluminum sheet material alloy shall be 5052 with a temper rating of H32, and have a tensile strength of 33,000 PSI and yield strength of 28,000 pounds.

The aluminum treadplate alloy shall be 3003 with a temper rating of H22, and have a tensile strength of 30,000 PSI and yield strength of 28,000 pounds.

The extrusions shall be designed as structural-framing members with the smooth aluminum and treadplate fabricated to form compartments, hosebeds, and floors. All aluminum material shall be welded together using the latest mig spray pulse arc welding system.

Compartments to be sweepout design and to be water and dust proof. All compartments shall be made to the maximum practical dimensions to provide maximum storage capacity. To ensure maximum storage space, the apparatus shall be constructed without any void spaces between the body and the compartment walls. Double wall construction does not meet this requirement.

All exterior compartments shall have polished aluminum drip moldings installed above the doors where necessary to prevent water from entering the compartments.

Wheel well panels shall be formed aluminum that is welded in place. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. To fully protect the wheel well area from road debris and to aid in cleaning, a full depth radius wheel well liner shall be provided. The frame side of the wheel well area on each side of the opening shall be attached to the frame side of the front and rear compartments. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartments.

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with stainless steel fasteners.

OUTRIGGER COVERS

A polished 3/16" aluminum treadplate cover shall be attached to the extending outrigger assemblies.

FASTENERS

All aluminum and stainless steel components shall be attached using stainless steel fasteners.

Compartment door hinges, handrails and running boards shall be attached using minimum 1/4" diameter machine bolt fasteners.

3/16" diameter fasteners shall only be used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc.

One (1)

Y__N__

COMPARTMENT FLOORS

The compartment floors shall be constructed of aluminum treadplate material.

One (1)

Y__N__

TANDEM AXLE WHEEL AREA

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth plate that is welded in place.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 25") radius wheel well liner shall be provided. Wheel well liner shall be smooth aluminum to prevent corrosion.

One (1)

Y__N__

FENDERETTES

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners.

One (1)

Y__N__

POWERED HOSEBED STORAGE LOAD

The hosebed shall be lowered hydraulically to the side of the truck that allows ease of loading the hose from the ground. The apparatus shall be capable of being driven during the loading of fire hose.

The hosebed shall be equipped with reflective striping and red flashing marker lights, front and rear, which activated when the rack is moved out of the stored position. An interlock shall be

provided so that the hosebed cannot be lowered without the aerial ladder and outriggers in the stowed position. The hosebed shall have a capacity of approximately of 55 cubic feet of fire hose and 1500 pounds.

The hosebed shall be hydraulically driven to swing down over the lower body compartments, to aid in the reloading of hose. When in the lowered position, the top of the storage shall be approximately 48" off of the ground and the outside edge shall not extend more than 30" from the body when deployed.

One (1)

Y__N__

ALUMINUM HOSEBED GRATING

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 7.5" wide and shall be welded into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

One (1)

Y__N__

ALUMINUM HOSEBED DIVIDER

One (1) adjustable hosebed divider constructed of .250" aluminum shall be installed on the apparatus.

One (1)

Y__N__

The hosebed cover shall be secured utilizing a Velcro fastening system at the front and sides of the hosebed body.

One (1)

Y__N__

BODY WIDTH

The overall width of the aerial body shall not exceed 102".

One (1)

Y__N__

COMPARTMENT DEPTH

The lower portion of the side compartments on the aerial body shall be 26" deep.

One (1)

Y__N__

COMPARTMENT DEPTH

The side compartments on the aerial body shall be 26" deep the full height of the compartments.

One (1)

Y__N__

COMPARTMENT DEPTH

The side compartments on the aerial body shall have the maximum available height and depth dimensions. These dimensions shall remain consistent for the full height and depth of the compartment.

One (1)

Y__N__

ROLL UP DOOR CONSTRUCTION

The roll up door(s) shall be fabricated from aluminum extrusions and be manufactured and assembled in the United States.

The door slats shall be double-wall extrusions with dimensions of 1.366" high x .315" thick. The exterior surface shall be flat and the interior surface concave to deflect loose equipment to prevent the door from jamming. Each slat shall have interlocking end shoes to prevent the slat from moving side to side resulting in binding of the door. Each slat shall be separated by a co-extruded PVC and rubber inner seal to prevent metal to metal contact and minimize dirt and moisture from entering the compartment. The inner seal shall not be visible from the exterior to maintain a clean appearance of door. The slats shall have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects.

The track shall be a one (1) piece aluminum assembly that has an attaching flange and finishing flange incorporated into the design that facilitates installation and provides a finished look to the door without additional trim or caulking. A low profile side seal shall be utilized to maximize usable compartment space.

A drip rail designed to prevent water from dripping into the compartment shall be provided. The drip rail shall have a built in replaceable non-contacting seal to eliminate scratching of the surface of the door.

Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door and have "V" shaped double seal to prevent water and debris from entering the compartment. The door latch system shall be a full width one (1) piece lift bar that enables the user to operate with one hand.

The roll mechanism shall have a clip system that connects the curtain slats to the operator drum to allow for easy tension adjustment without tools. A four (4) inch diameter counterbalanced operator drum to shall be incorporated to assist in lifting the door.

One (1)

ROLLUP DOORS

Y__N__

The rollup doors shall be ROM manufacturing roll up doors.

One (1)

LEFT SIDE BODY COMPARTMENTS

Y__N__

The left side body compartmentation shall be as follows:

One (1)

LEFT FRONT COMPARTMENT

Y__N__

There shall be one (1) compartment located above the front outrigger. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:

One (1)

Above The Front Outrigger, Left Side, Compartment Provisions

Y__N__

One (1)

COMPARTMENT LOUVER

Y__N__

One (1) louver with filter shall be installed on the back wall of the specified compartments.

One (1) Y__N__

COMPARTMENT LIGHT

One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.

One (1) Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1) Y__N__

LEFT FRONT COMPARTMENT

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

One (1) Y__N__

Front of Body, Left Sides, Compartment Provisions

One (1) Y__N__

COMPARTMENT LOUVER

One (1) louver with filter shall be installed on the back wall of the specified compartments.

One (1) Y__N__

COMPARTMENT LIGHT

One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.

One (1) Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1) Y__N__

LEFT HIGH SIDE COMPARTMENTS

There shall be two (2) compartments above the rear wheels. Each compartment shall be equipped with a single natural finish roll up door.

The compartments shall be equipped with the following:

One (1) Y__N__

Upper High Side Compartment(s), Left Side, Compartment Provisions

One (1) Y__N__

COMPARTMENT LOUVER

One (1) louver with filter shall be installed on the back wall of the specified compartments.

Two (2)

Y__N__

COMPARTMENT LIGHTS

One (1) LED strip light fixture shall be installed on the ceiling of the exterior compartment of the apparatus. The light shall have a clear lens.

Two (2)

Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)

Y__N__

LEFT REAR COMPARTMENT

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a single full height natural finish roll up door.

The compartment shall be equipped with the following:

One (1)

Y__N__

Behind Rear Wheels, Left Side, Compartment Provisions

One (1)

Y__N__

COMPARTMENT LOUVER

One (1) louver with filter shall be installed on the back wall of the specified compartments.

One (1)

Y__N__

COMPARTMENT LIGHT

One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.

One (1)

Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)

Y__N__

LEFT REAR COMPARTMENT

There shall be one (1) compartment located above the rear outrigger. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:

One (1)

Y__N__

Above Rear Outrigger, Left Side, Compartment Provisions

One (1)

Y__N__

COMPARTMENT LOUVER

One (1) louver with filter shall be installed on the back wall of the specified compartments.

One (1)

Y__N__

COMPARTMENT LIGHT

One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.

One (1)

Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)

Y__N__

ACCESS TO TURNTABLE

An access ladder shall be provided on the left side of the apparatus as a means of egress to and from the aerial device turntable. The ladder shall have five (5) seven (7") inch open style stair treads leading to the turntable on each side. A sixth fold down type step shall hinge above the first step and stow between the first and second steps while in the travel position. A full length thirty-six inch (36") handrail shall be furnished on both sides of the access ladders to provide hand holds while traveling up the ladders. A weatherproof micro switch shall sense the down position of the step and alert the driver should the vehicle emergency brake be released. This switch will be wired into the open door warning system.

A photo of the Safety ladder design shall be provided with the completed apparatus.

One (1)

Y__N__

RIGHT SIDE BODY COMPARTMENTS

The right side body compartmentation shall be as follows:

One (1)

Y__N__

RIGHT OUTRIGGER COMPARTMENT

There shall be no compartment above the front outriggers.

One (1)

Y__N__

RIGHT FRONT COMPARTMENT

There shall be one (1) low compartment located ahead of the rear wheels. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:

One (1)

Y__N__

Ahead Rear Wheels, Right Side, Compartment Provisions

One (1)

Y__N__

COMPARTMENT LOUVER

One (1) louver with filter shall be installed on the back wall of the specified compartments.

One (1) Y__N__

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1) Y__N__

COMPARTMENT LIGHT

One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.

One (1) Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1) Y__N__

RIGHT REAR COMPARTMENT

There shall be one (1) low compartment located behind the rear wheels. The compartment shall be equipped with a single full height natural finish roll up door.

The compartment shall be equipped with the following:

One (1) Y__N__

Behind Rear Wheels, Right, Compartment Provisions

One (1) Y__N__

COMPARTMENT LOUVER

One (1) louver with filter shall be installed on the back wall of the specified compartments.

One (1) Y__N__

COMPARTMENT LIGHT

One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.

One (1) Y__N__

COMPARTMENT LIGHT SWITCH

The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1) Y__N__

RIGHT OUTRIGGER COMPARTMENT

There shall be no compartment above the front outriggers.

One (1) Y__N__

RIGHT REAR COMPARTMENT

There shall be one (1) low compartment located behind the rear outrigger. The compartment shall be equipped with a single full height natural finish roll up door.

The compartment shall be equipped with the following:

One (1)	<u>Behind Rear Outrigger, Right, Compartment Provisions</u>	Y__N__
One (1)	<u>COMPARTMENT LOUVER</u>	Y__N__
	One (1) louver with filter shall be installed on the back wall of the specified compartments.	
One (1)	<u>COMPARTMENT LIGHT</u>	Y__N__
	One (1) LED strip light fixture shall be installed in the compartment. The compartment light shall have a clear lens.	
One (1)	<u>COMPARTMENT LIGHT SWITCH</u>	Y__N__
	The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.	
One (1)	<u>REAR COMPARTMENT</u>	Y__N__
	There shall be one (1) compartment located at the rear of the apparatus. The compartment, located within the aerial torque box, shall have provisions to accommodate the following ladders and pike poles:	
	<ul style="list-style-type: none"> • Two (2) 16-foot roof ladders with roof hooks • One (1) 24-foot two-section extension ladder • One (1) 35-foot three-section extension ladder • One (1) 14-foot combination ladder • One (1) 10-foot folding attic ladder • Six (6) pike poles • Two (2) pike poles, with D-ring handles 	
	The compartment shall be equipped with a natural finish roll up door.	
One (1)	<u>COMPARTMENT LIGHT</u>	Y__N__
	Two (2) LED strip light fixtures shall be installed in the compartment. The compartment light shall have a clear lens.	
One (1)	<u>COMPARTMENT LIGHT SWITCH</u>	Y__N__
	The compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.	
One (1)	<u>SLIDE OUT REAR LADDER AERIAL TORQUE BOX</u>	Y__N__
	Ground ladders and pike poles shall be accessed from the rear of the apparatus. All ladders shall mounted individual brackets and slide on composite material so as not to damage the main beams of the ladders. Pike poles and the folding ladder shall be stored in individual storage area.	

Ladders shall have stops provided on the front of all slides so ladders will not slide forward during emergency braking conditions.

NOTE: Ladder Load shall be 35'-3, 24'-2, 16' Roof (X2), 10' Attic, 14' Combo.

One (1)

Y__N__

LADDER SOURCE

New ground ladders shall be Duo-Safety® and provided by the body builder.

One (1)

Y__N__

AERIAL REAR BUMPER

A 4" rear bumper shall be provided at the rear of the apparatus body, and be easily removable for replacement or repair. The rear bumper shall be constructed of .188" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.

One (1)

Y__N__

FRONT BODY PROTECTION PANELS

Aluminum tread plate overlays and panels shall be installed on the front of the body from the lower edge to the top of the compartment doors.

One (1)

Y__N__

REAR BODY PROTECTION PANELS

Smooth aluminum shall be installed on the rear of the body, to allow for the proper application and installation of a "Chevron" stripe on the rear.

One (1)

Y__N__

EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel.

One (1)

Y__N__

WHEEL WELL PROVISION LOCATION

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

One (1)

Y__N__

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

One (1)

Y__N__

SCBA COMPARTMENT STRAPS

One (1) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1)

Y__N__

WHEEL WELL PROVISIONS LOCATION

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

One (1)

Y__N__

DUAL AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment for two (2) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement.

The compartment shall be provided with SCBA cylinder scuff protection.

Two (2)

Y__N__

SCBA COMPARTMENT STRAPS

Two (2) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1)

Y__N__

WHEEL WELL PROVISION LOCATION

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

One (1)

Y__N__

FUEL PIPING AND FILL CAP

There shall be a fuel fill cap provided in the recessed area of the left side rear wheel well clearly marked, "DIESEL FUEL ONLY". The fill shall be piped to the fuel tank.

One (1)

Y__N__

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

One (1)

Y__N__

SCBA COMPARTMENT STRAPS

One (1) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1)

Y__N__

WHEEL WELL PROVISION LOCATION

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

One (1)

Y__N__

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

One (1)

Y__N__

SCBA COMPARTMENT STRAPS

One (1) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1)

Y__N__

WHEEL WELL PROVISIONS LOCATION

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

One (1)

Y__N__

DUAL AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment for two (2) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement.

The compartment shall be provided with SCBA cylinder scuff protection.

Two (2)

Y__N__

SCBA COMPARTMENT STRAPS

Two (2) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1)

Y__N__

WHEEL WELL PROVISION LOCATION

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

One (1)

Y__N__

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

One (1)

Y__N__

SCBA COMPARTMENT STRAPS

One (1) one-inch (1") wide loop of black webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1)

Y__N__

LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards.

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

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

The wiring between the cab and body shall be joined using Deutsche type connectors or an enclosed in a terminal junction panel area. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system.

Any electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified every three (3") by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA #1901 standards.

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

The electrical system shall include the following:

- a) Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- b) The electrical wiring shall be harnessed or be placed in a protective loom.
- c) Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- d) Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.
- e) A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.
- f) All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights provided over the minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. The warning light switches shall be of the rocker type. For easy nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized. All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall automatically activate per requirements of the applicable NFPA standards. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

The apparatus shall be electrically 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 the applicable NFPA standards. 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 failed test.

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 is permitted during this test. However, if an alarm sounds due to excessive battery discharge, as detected by the system requirements in the NFPA standards, or a system voltage of less than 11.7 volts dc for more than 120 seconds is present, the test has failed.

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 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:
 1. The nameplate rating of the alternator.

2. The alternator rating under the conditions.
3. Each specified component load.
4. Individual intermittent loads.

One (1)

Y__N__

LOW VOLTAGE ELECTRICAL SYSTEM

The electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required. The main body junction panel shall be located in the pump compartment.

One (1)

Y__N__

LOAD MANAGER 2

The apparatus shall be equipped with a Kussmaul model 091-79 Automatic Load Shedding System for performing continuous electrical load management. The Load Manager shall have the following features:

- Monitor 12-volt system and detect low voltage.
- Capability to control two (2) loads.
- Automatic reset when voltage rises.
- Adjustable voltage setpoint.

The load manager shall be protected against reverse polarity and shorted outputs, and be enclosed in a enclosure to enhance EMI/RFI protection. The body builder shall provide for all electrical loads in excess of the NFPA minimum electrical requirements that exceed the alternator output.

One (1)

Y__N__

HIGH IDLE SYSTEM

There shall be a high idle system furnished and installed on the apparatus. The high idle system shall have an on/off switch located in the chassis on the switch console. The system shall have an interlock that will disable the solenoid if the parking brake is not completely set.

One (1)

Y__N__

WIRELESS FIRECOM INTERCOM

A 3010R intercom system designed for Six-persons and six-positions shall be designed and mounted in the chassis cab. The 3010R system adds advanced electronics and user-friendly features for increased performance. This system uses wireless headsets and single and multiple channel base stations.

The driver and officers headsets are to be radio interface capable.

The apparatus body builder shall supply a radio interface capable of connection to the fire department's radios.

One (1)

Y__N__

DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL

An electrical switch panel shall be designed and mounted in the cab dash area. All switches shall be provided with backlighted snap-in legend inserts.

SWITCHES

All emergency light switches shall be lighted, rocker style. Switches shall be internally lit when the switch circuit is in the on position. A plug-in identification label is to be provided and installed adjacent to each rocker switch with backlighting provided behind the label.

An internally lighted "master" switch shall be provided and wired through a heavy-duty relay to activate power to the emergency lights. Emergency lighting shall be switched by zones and exact configuration will be determined at pre-construction.

One (1)

Y__N__

BATTERY CHARGER

Battery charger system shall be installed. The battery charger shall be supplied from the 120 volt shore power receptacle and be a fully automatic high output charging system. The unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

One (1)

Y__N__

AIR SHORELINE CONNECTION

A compressed air inlet fitting shall be provided for connection to an external air source to maintain the air brake pressure. The **male** quick connect fitting shall have a check valve installed to prevent air from escaping from the air storage tanks on the chassis.

The air inlet fitting shall be located in the driver's side step or door area. Exact location will be determined at the pre-construction meeting.

One (1)

Y__N__

SHORE POWER PLUG

The shore power plug shall be located in the driver's side step or door area. Exact location will be determined at the pre-construction meeting.

One (1)

Y__N__

PUMP ENCLOSURE LIGHTS

One (1) LED work light shall be provided in the pump enclosure. The control switch shall be mounted on the light head.

One (1)

Y__N__

MARKER LIGHTS

Incandescent marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements.

One (1)

Y__N__

LICENSE PLATE BRACKET

One (1) license plate bracket shall be provided at the rear bumper. The bracket shall have a light and shall be chrome plated.

- One (1) Y__N__
TAIL LIGHTS
Two (2) LED tail/brake lights shall be provided. The rectangular light shall be 7" x 8" LED with a red lens.
- One (1) Y__N__
TURN SIGNALS
Two (2) LED turn signals shall be provided. The rectangular light shall be 7" x 8" LED with a amber lens.
- One (1) Y__N__
BACKUP LIGHTS
Two (2) LED backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 7" x 8" and the lens color shall be clear.
- One (1) Y__N__
MID BODY TURN SIGNALS
Two (2) mid body turn signals shall be provided. The rectangular LED lights shall be 4" x 6" in dimension. The location of the turn lights shall be at mid-body near the rear wheel axle.
- One (1) Y__N__
CAB GROUND LIGHTS
The cab ground lights shall be supplied with the cab chassis.
- Two (2) Y__N__
PUMP PANEL GROUND LIGHTS
Two (2) ground lights shall be installed under the pump panel running boards. One (1) light shall be located on the driver's side and one (1) light located on the officer's side of the apparatus.
- One (1) Y__N__
REAR STEP GROUND LIGHTS
Two (2) ground lights shall be installed under rear step of the apparatus.
- Two (2) Y__N__
REAR WORK LIGHTS
Two (2) halogen 4 x 6 work lights with down angle shall be installed. Exact location will be determined at the pre-construction meeting.
- Two (2) Y__N__
REAR WORK LIGHTS SWITCH
Two (2) halogen 4 x 6 work lights will be manually at the lights
- One (1) Y__N__
GROUND LIGHT SWITCH
The ground lights shall automatically activate when the pump panel switch is applied.

- Two (2) Y__N__
STEP LIGHT
 Two (2) step lights with clear lens shall be installed to illuminate the step surface(s) at rear of the apparatus body.
- One (1) Y__N__
STEP / WALKWAY LIGHT SWITCH
 The step/walkway light switch shall be installed and wired to the parking brake.
- One (1) Y__N__
ELECTRIC SIREN
 One (1) Whelen Model # 295SI101 200 watt electric siren shall be mounted in the cab. The unit shall feature and electronic air horn, wail, yelp, hi-lo siren tones and shall have a PA microphone.
- One(1) Y__N__
SPEAKER
 Two (2) 100 watt siren speakers with chrome housings shall be installed.
- One (1) Y__N__
SPEAKER LOCATION
 The siren speakers shall be installed flush in the front bumper of the apparatus. Exact location will be determined at the pre-construction meeting.
- One (1) Y__N__
LIGHTBAR
 Two (2) Whelen Mini Edge® Ultra Freedom Series lightbars shall be provided and installed each light bar shall have clear lens and red LEDs. Location on apparatus roof will be determined at pre-construction meeting.
- One (1) Y__N__
OPTCOM
 One (1) 3M™ Opticom™ Model 792 Emitter, self contained emitter lighthouse shall be installed on the front of the apparatus cab. Exact location will be determined at the pre-construction meeting.
- One (1) Y__N__
UPPER REAR WARNING LIGHTS
 One (1) pair of Whelen rotating beacon halogen warning lights shall be provided and installed, one each side on the upper rear of the apparatus body. The rotary light shall have at least a 50 watt halogen lamp with the total dimensions of the lights no less than 6" x 6" and shall have one red lens and one amber lens.
- One (1) Y__N__
REAR WARNING LIGHT MOUNTING
 The upper rear lights shall be mounted on cast aluminum stanchions attached to the apparatus body, one on each side.

One (1)

Y__N__

LOWER FRONT WARNING LIGHTS

One (1) pair of Whelen 600 series linear Super-LED light heads shall be provided and installed, one on each side of the front of the chassis cab. The dimensions shall be no less than 4" H x 6" W and shall be red in color.

One (1)

Y__N__

INTERSECTION WARNING LIGHTS

One (1) pair of Whelen 600 series linear Super-LED light heads shall be provided and installed, one on each side of the chassis cab. The dimensions shall be no less than 4" H x 6" W and shall be red in color.

One (1)

Y__N__

LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen 600 series linear Super-LED light heads shall be provided and installed, one on each side of the apparatus, mid-body. The dimensions shall be no less than 4" H x 6" W and shall be red in color.

One (1)

Y__N__

LOWER REAR SIDE WARNING LIGHTS

One (1) pair of Whelen 600 series linear Super-LED light heads shall be provided and installed, one on each side of the apparatus body, towards the rear of the body. The dimensions shall be no less than 4" H x 6" W and shall be red in color.

One (1)

Y__N__

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen 600 series linear Super-LED light heads shall be provided and installed, one on each side of the apparatus on the lower rear. The dimensions shall be no less than 4" H x 6" W and shall be red in color.

One (1)

Y__N__

8000 WATT HYDRAULIC GENERATOR

The generator system shall be a Harrison brand with the following ratings:

1. 8000 Watts
2. 120/240 Volts
3. 66/33 amps
4. Single phase, 60 hertz

The system shall be designed and assembled by a company with no less than 10 years experience in the manufacture of hydraulic driven generator systems.

The generator shall be installed per the manufacturer recommendations and shall be capable of supplying full power at engine high idle.

The motor/generator shall be placed in a tray frame assembly that affords protection to the components and provides a unitized mounting module containing motor/generator, reservoir, oil cooler, filtration system, and a manifold containing a cross-port check valve plus system relief valve. The generator shall be a commercial type with a heavy-duty bearing and of brushless design to ensure low maintenance. No brushes or slip rings will be allowed. The hydraulic

reservoir shall include a sight gauge for the oil level, oil temperature gauge, fill cap, oil filter, fill strainer, and a boost unit to provide a positive pressure to the pump suction port. The generator and hydraulic motor shall be close coupled and permanently aligned using a Morse taper with a through bolt to secure the motor to the generator. No two bearing generators or shaft coupling devices are allowed.

The system shall be driven by a "HOT SHIFT" PTO, and be capable of producing the rated full-load power when driven from the vehicle PTO from high idle to maximum engine speed.

The hydraulic motor and pump shall be of axial piston design to provide low internal leakage and a high degree of frequency stability. No gear pumps or gear motors are allowed. The pump will match to the system with the proper orifice, pressure compensator and load sensing to provide a stable output over the rated speed range of the pump and with electrical loads from no load to full load.

A display meter consisting of 4 numeric LED displays shall be used. The meter shall simultaneously display system voltage, frequency and amperage in each of the two 120V legs. The display shall be mounted in an area clear for operator observation and near the on/off switch.

Data Label

A permanent data label indicating the following information shall be applied:

- 1) Rated voltage
- 2) Phase
- 3) Frequency
- 4) Amperage
- 5) Continuous Watts
- 6) Peak Watts

One (1)

Y__N__

ELECTRICAL SYSTEM INSTALLATION

The line voltage electrical system shall comply with the applicable NFPA standards and also comply with the applicable sections of the National Electric Code #70 standards. Line voltage carrying equipment down stream of the power source shall be "listed" (where available) and installed in accordance with manufacturers instructions. The electrical equipment installed shall be suitable for intended use and type locations (wet, dry, or underbody and chassis).

The grounding and bonding shall comply to applicable sections of NFPA standards. The chassis frame rail, body sheet metal, and cab sheet metal shall be properly bonded per NFPA schematic. The bonding copper conductor shall be rated at 115 % of current rating of power source.

Over-Current Protection Panel

Manually re-settable over current devices shall be installed to protect the line voltage electrical system components. A main over current protection device shall be provided. The device shall be either incorporated in the power source or connected to the power source by a power supply assembly. The size of the main over current protection device shall not exceed 100 percent of the nameplate amperage rating on the power source specification label or the rating of the next larger available size over current protection device where so recommended by the power source manufacturer.

The conductor used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches in length. If over this distance, a separate master disconnect shall be installed at the generator area.

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with NEC. Each over current protection device shall be marked to identify the function of the circuit it protects. The circuit breaker panel and instruments shall be located so that all circuit breakers are readily visible under normal operating conditions. The panel shall be readily visible and located so that there is unimpeded access to the panel board controls.

Hydraulic Components

A hydraulic system filter, fluid level gauge, and fluid temperature gauge shall be provided as integral components within the hydraulic reservoir. The reservoir shall be easily accessible to allow filter changes and fluid level checks. There shall be at least 10 inches of clear space above the reservoir to allow removal of the filter element. Interconnecting hoses and fittings shall meet the generator system manufacturer's recommendations for pressure, size, and type of hose used. Where any hydraulic hose contacts other surfaces, the hose shall be protected from chafing. The hydraulic pump shall be driven by a power take-off mounted to the chassis automatic transmission.

Control Panel

The panel shall include the following:

- a) Green indicator light to indicate PTO engagement. The light shall be labeled "GENERATOR ENGAGED."
- b) Red indicator light to indicate chassis transmission fluid overheat. The light shall be labeled "TRANSMISSION OVERHEAT."
- c) Main circuit breaker panel with "main" breaker and individual line breakers.
- d) All breakers, outlets, switches, and receptacles shall be labeled per requirements of applicable NFPA standards.
- e) The generator shall be capable of producing full rated power throughout the entire RPM range of the engine.

Permanent data plaque indicating the following information:

- a) Rated voltage
- b) Phase
- c) Frequency
- d) Amperage
- e) Continuous power in watts
- f) Engine RPM

Instruction Label

An instruction label indicating essential generator operating instructions, including power-up and power-down sequence shall be permanently attached at or near the operator's panel.

One (1)

Y__N__

ELECTRICAL SYSTEM TESTING

All apparatus installed wiring and associated equipment shall be tested by the apparatus manufacturer in compliance to applicable NFPA standards. The apparatus manufacturer shall test the generator system at the continuous duty rating for a minimum of two (2) hours.

If the apparatus is equipped with a fire pump, both the generator and fire pump shall be operated simultaneously at full pump capacity and generator at "continuous rating" for two (2)

hours. Failure of either the generator system or fire pump system during testing will require retesting of both components simultaneously.

The conditions specified shall be recorded at least every 1/2 hour during the test. The results of these tests shall be submitted to the purchaser upon delivery.

Each outlet shall be tested individually to device rating.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

One (1)

CIRCUIT BREAKER BOX

Y__N__

One (1) circuit breaker box for single phase voltage equipment shall be provided capable of holding twelve (12) breakers.

The circuit breaker box shall be located in the left front compartment.

One (1)

GENERATOR STARTUP

Y__N__

An activation switch for the hydraulic generator shall be installed in the apparatus cab.

One (1)

GENERATOR MOUNTING LOCATION

Y__N__

The generator shall be installed over the fire pump enclosure.

One (1)

CIRCUIT BREAKER BOX LOCATION

Y__N__

The circuit breaker box shall be installed in an outside body compartment.

One (1)

GENERATOR INSTRUMENT PANEL LOCATION

Y__N__

The instrument panel for the generator shall be installed next to the breaker panel. And separate switching for the flood lights and towers shall be installed in a compartment behind a door. Exact location and configuration will be determined at the pre-construction meeting.

One (1)

LINE VOLTAGE WIRING INSTALLATION

Y__N__

Line voltage wiring in the apparatus shall be with Type SO or approved cable suitable for mobile applications. The flexible electrical cable shall have 600-volt insulation rated for at least 194 degrees F. All junction boxes shall conform to the National Electric Code and shall be fully accessible for service and not be hidden in walls or ceiling.

Electrical cable shall be supported within 6 inches of any junction box and at a minimum of every 24 inches of run. Supports shall be made of corrosion protected metal that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

Electrical cable shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage

wiring and shall be separated by a minimum of 12 inches from exhaust piping or properly shielded and separated from fuel lines by a minimum of 6 inches distance.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used.

One (1)

Y__N__

120V ELECTRIC RECEPTACLE -- TWIST LOCK

Three (3) 120-volt 15 amp twist lock (NEMA L5-15) receptacle with spring loaded weatherproof cover shall be provided with wiring to the circuit breaker panel.

One (1)

Y__N__

ELECTRIC RECEPTACLE LOCATION -- REAR EXTERIOR BODY

The electric receptacle shall be located on the exterior left rear face of the body.

One (1)

Y__N__

ELECTRIC RECEPTACLE LOCATION -- REAR EXTERIOR BODY

The electric receptacle shall be located on the exterior right rear face of the body.

One (1)

Y__N__

FLOODLIGHT LOCATION - FRONT OF CAB

The mounting location of the floodlights shall be on the front center of the cab.

One (1)

Y__N__

BROW 750 WATT FLOODLIGHT

One (1) Fire Research Optimum model OPA800-S75 contour roof mount light shall be installed on the front of the cab. The mounting brackets shall attach to the bottom of the lamphead and be machined to conform to the roof radius. Wiring shall extend from a weatherproof strain relief at the rear of the lamphead.

The lamphead shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamphead shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamphead shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. The lamphead shall be no more than 4 3/4" deep by 5 1/8" high by 8 3/4" wide. Lamphead and brackets shall be powder coated white.

One (1)

Y__N__

FLOODLIGHT LOCATION - PUMP ENCLOSURE

The mounting location of the floodlights shall be on the pump enclosure on both sides.

Two (2)

Y__N__

TELESCOPIC 750 WATT FLOODLIGHT

Two (2) Fire Research Optimum model OPA530-S75 side mount push up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer

pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamphead shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamphead shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamphead shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. The lamphead shall be no more than 4 3/4" deep by 5 1/8" high by 8 3/4" wide. Lamphead and brackets shall be powder coated white.

One (1)

Y__N__

BODY PAINT PROCESS

All bright metal fittings, if unavailable in stainless steel shall be heavily chrome plated. Iron fittings shall be copper plated prior to chrome plating.

All seams shall be caulked both inside and along the exterior edges with a urethane automotive sealant to prevent moisture from entering between any body panels.

The body and all parts shall be thoroughly washed with grease cutting solvent (PPG DX330) prior to any sanding. After the body has been sanded and the weld marks and minor imperfections are filled and sanded, the body shall be washed again with (PPG DX330) to remove any contaminants on the surface.

The first coating to be applied is a pre-treat self etching primer (PPG DX1787) (.5 to 1.0 dry film build) for maximum adhesion to the body material. The next two to four coats (depending on need) shall be an acrylic urethane primer surfacer (PPG K38). The film build shall be 4-6 mils when dry. The primer surfacer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure maximum gloss of the paint. The last step is the application of at least three coats of PPG Concept acrylic urethane two-component color (single stage). The film build being 2-3 mils dry. The single stage acrylic urethane, when mixed with component (PPG DCX61) catalyst shall provide a UV barrier to prevent fading and chalking.

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

One (1)

Y__N__

INTERIOR COMPARTMENT FINISH

Twelve (12) apparatus side compartment interiors are to be painted with a spatter finish material. The compartments shall be cleaned with a grease remover, and then the surface sanded and prepared for painting. The compartment shall be provided with two (2) coats of white epoxy. The compartments are then coated with a splatter paint top coat.

One (1)

Y__N__

TOUCH-UP PAINT

One (1) two (2) ounce bottle of touch-up paint shall be furnished with the completed truck at final delivery.

One (1)

Y__N__

SIMULATED GOLD LEAF LETTERING

The lettering shall be applied in simulated gold leaf material, shaded in black and encapsulated in clear Mylar.

A quantity of fifty (50), four (4) inch letters are to be placed on the cab and on the body as directed by fire department.

One (1)

Y__N__

LETTERING

Two (2) painted panels shall be supplied for attachment to the sides of the aerial device. The panels shall be painted to match the color of the aerial device. Lettering (up to fifty (50) letters) shall be provided on the aerial sign panels. The maximum size of the panels shall be up to 10" x 144". The lettering provided shall be painted or vinyl with the color specified by the customer at pre-construction conference.

One (1)

Y__N__

AERIAL LIFT CYLINDER PROTECTIVE COVERS

There shall be aluminum protective covers provided one over each of the two (2) aerial lift cylinder assemblies. The covers shall be constructed from .125 thick, smooth aluminum materials and be designed to prevent damage to the lift cylinders due to impact from environmental factors. The protective covers shall be bolted in place using stainless steel fasteners and easily removable for service to the aerial lift cylinders. Lubrication points shall be accessible without the need to remove the protective covers. In addition to the added component protection, the lift cylinder covers shall provide added fire fighter safety from lift cylinder pinch point areas and a superior aesthetic appearance to the aerial device.

The exterior of the protective covers shall be painted to match the aerial body color using PPG automotive quality product. The application process shall conform to all PPG guidelines.

One (1)

Y__N__

CAB AND BODY STRIPE

A straight Scotchlite reflective stripe, 4" minimum in width, shall be applied in a "Z" pattern around the cab and body in compliance with applicable NFPA 1901 standards. The purchaser shall specify the color and location of the stripe.

One (1)

Y__N__

COLOR OF STRIPING MATERIAL

The color of the 3M brand striping material shall be determined at the pre-construction meeting.

One (1)

Y__N__

CHEVRON STRIPING

The entire rear portion of the body shall have 3M reflective red and amber striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

One (1)

Y__N__

REFLECTIVE TAPE ON OUTRIGGERS

The outriggers that extend beyond the side of the body shall have white reflective tape applied to both the front and rear facing sides.

One (1)

Y__N__

REFLECTIVE STRIPE

Reflective striping shall be installed on the interior of each chassis door.

One (1)

Y__N__

AERIAL INSTRUCTION LABELS

Safety and instructional labels shall be applied at all necessary areas on the aerial device to identify points critical to the safe operation and maintenance of the aerial.

One (1)

Y__N__

109' FOUR-SECTION REAR-MOUNT LADDER SPECIFICATIONS

Aerial Ladder Design and Construction

A 109' four-section steel rear mount aerial ladder shall be provided. It shall have a maximum height of 109' at the top rung of the fly section at 75-degrees elevation. The horizontal reach from the top rung to the center of the turntable shall be 101' 8".

Operation on grades

The aerial shall be capable of being operated with full rated capabilities in any plane up to 5-degrees out of level with the turntable leveled as much as possible by placement of the outriggers. Operation beyond this limit shall be at the operator's discretion.

Extension And Retraction System

Two [2] 5" inside diameter cylinders, each with 2-1/2" outside diameter rods and a 67-1/2" stroke, are used in the extension and retraction system. The specified extension cylinders shall not exceed the specified length. The required length cylinders shall place the cylinder weight closer to the base of the aerial device. Smaller size cylinders are required since they are easier to handle for removal for service reasons. In addition, the specified shorter stroke cylinders provide less potential for damage to the rod by hitting an obstacle when extended.

The extension cylinders shall have counter balance valves mounted directly to them and shall extend and retract the aerial with a 4 to 1 cable cylinder arrangement from totally retracted to 109' at 75 degrees totally extended.

The extension and retraction system shall have six [6] pairs of cables. Lower-mid section cables shall have a .50" diameter, upper-mid section cables have a .375" diameter, and fly section cables shall have a .3125" diameter.

Each of the cylinders, cables, and sheave assemblies shall be completely independent of the other system, so as to provide a safety factor wherein a failure of one assembly shall not affect the function and operation of the other assembly. Each set of cables shall be capable of operating the ladder in the event of a failure of the other.

There are no restrictions on the waterway as the ladder is extended and retracted

Ladder Cradle Alignment Light

An amber LED indicator light will be supplied on the control console to indicate to the operator when the aerial is aligned with the travel bed support and can be lowered into the travel support.

A limit switch on the base section shall signal by means of an amber indicator light when the aerial rungs are in alignment.

State-of-the Art Technology

The aerial device materials, parts, technology or procedures used in construction of the apparatus are subject to change at the manufacturer's discretion to provide "equal or better" products and must be in compliance to applicable NFPA #1901 standards and industry standard practice.

One (1)

Y__N__

LADDER BASE SECTION

The ladder base section length shall 32' 9", with inside dimension of 39.25"; distance between the top of the handrail and the centerline of the rungs shall be 28.375".

The base rails shall be 100,000 PSI material and the handrails shall be 100,000 PSI material.

One (1)

Y__N__

LADDER LOWER-MID SECTION

The ladder lower-mid-section length shall be 32' 10", with inside dimension of 33.375"; the distance between the top of the handrail and the centerline of the rungs shall be 22.875".

The base rails shall be 100,000 PSI material and the handrails shall be 70,000 PSI steel material.

One (1)

Y__N__

LADDER UPPER-MID SECTION

The ladder upper mid-section length shall be 32' 11", with inside dimension of 27.375"; the distance between the top of the handrail and the centerline of the rungs shall be 18.875".

The base rails shall be 70,000 PSI material and the handrails shall be 70,000 PSI steel material.

One (1)

Y__N__

LADDER FLY SECTION

The ladder fly section length shall be 36' 3" including the bolt-on egress, with inside dimension of 22.125"; the distance between the top of the handrail and the centerline of the rungs shall be 15.375".

The handrails and base rails shall be 70,000 PSI steel material.

One (1)

Y__N__

TECHNICAL DRAWINGS

Technical and engineering drawings shall be provided for the aerial ladder as follows: left side view, top view and rear view.

One (1)

Y__N__

TECHNICAL DRAWINGS -- 12 VOLT ELECTRICAL SYSTEM

Technical and engineering drawings shall be provided for the 12 volt electrical system for the model of apparatus specified.

One (1)

Y__N__

TECHNICAL DRAWINGS -- HYDRAULIC SYSTEM

Technical and engineering drawings shall be provided for the aerial device hydraulic system.

One (1)

Y__N__

AERIAL OPERATING INSTRUCTIONS AND DEMONSTRATION

As required by applicable sections of NFPA #1901, operating instructions and demonstration of the aerial apparatus shall be provided at the purchaser's location. A trained and qualified technician shall provide these instructions and demonstration of the aerial apparatus.

Personnel providing the instructions shall be professionally trained by the aerial manufacturer prior to the delivery process. All costs of these instructions shall be borne by the bidder. The bidder shall provide classroom instructions, instruction and operating manuals as required by NFPA #1901, and provide all other necessary material necessary to assure proper operation of the aerial device.

This instruction period shall be a minimum of one (1) day at the purchaser's location. The purchaser shall pick the date and time of training in coordination with the bidder.

One (1)

Y__N__

AERIAL OPERATION AND SERVICE DOCUMENTATION

The bidder shall supply, at time of delivery, at least two (2) sets of complete operation and service documentation covering the completed apparatus as delivered and accepted. The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof. This documentation and manuals shall be provided in the English language..

One (1)

Y__N__

OVERALL AERIAL WARRANTY

A (1) year or 100,000 miles overall parts and labor warranty as follows:

The aerial manufacturer shall warrant to the purchaser that the complete aerial device and system was manufactured to comply with the manufacturer's bid specifications and free in all respects from any defects in materials or workmanship.

One (1)

Y__N__

AERIAL STRUCTURAL WARRANTY

The aerial ladder sections shall carry a warranty against structural failures caused by defective design or workmanship for a period the earlier of twenty (20) years or 100,000 miles. This warranty shall commence on the date vehicle is accepted by the original purchaser.

The structural warranty shall be conditional upon normal and reasonable maintenance as outlined in the operating and service manuals provided with the vehicle. In addition, the apparatus shall be maintained, inspected, and tested in compliance to applicable NFPA #1901, #1911, and #1914 standards. The structural warranty does not cover defects caused from misuse, negligence, accident. This warranty shall not apply if the aerial device is remounted on another chassis.

One (1)

Y__N__

TESTING CRITERIA

The aerial ladder shall be inspected and tested by a third party. A non-destructive test shall be performed on each unit at a rate of 100% inspection by the Underwriters Laboratories inspector, exceeding the requirements applicable section of NFPA #1901 for new apparatus. All non-destructive procedures shall be fully documented and meet or exceed the requirements of applicable sections of NFPA #1901.

One (1)

Y__N__

AERIAL WATERWAY FLOW TESTING

The waterway flow test shall be conducted by an accredited third party testing organization with certified results provided on delivery of the apparatus. If the aerial device is equipped with a permanent water system and has a rated vertical height of 110 ft (34 m) or less, standard model flow test data shall be provided to the purchaser.

If the water system has been modified from the standard model configuration, a new flow test shall be conducted to determine that the friction loss in the water system between the base of the swivel and the monitor outlet does not exceed 100 psi (700 kPa) with 1000 gpm (3748 L/min) flowing and with the water system at full extension.

A flow test shall be conducted on each vehicle to determine that the water system is capable of flowing 1000 gpm (3748 L/min) (or rating as specified in these specifications) at 100 psi (700 kPa) nozzle pressure with the aerial device at full elevation and extension.

Where the apparatus is equipped with a fire pump designed to supply the water system, the test shall be conducted using the onboard fire pump.

The intake pressure to the fire pump shall not exceed 20 psi (140 kPa).

One (1)

Y__N__

CORROSION PROTECTION -- AERIAL LADDER SECTIONS

Prior to assembly, each aerial ladder section shall be hot dip galvanized. The galvanizing process will permeate each ladder section to prevent rust and corrosion and not be merely an over-coating. The galvanized aerial ladder sections shall be provided in the natural finish eliminating the requirement for finish paint and the subsequent requirements for touch up paint and/or total repaint after a period of time due to nicks, chips and corrosion resulting from hitting the ladder many times in use. The galvanized ladder shall reduce the maintenance requirement for grease once or twice a year, based on duty cycle.

The aerial ladder sections are galvanized inside and out, including base rails, hand rails, diagonals, rungs and K-Braces. This process eliminates the rusting, scratching or paint chips on the aerial sections. Galvanizing has been recognized as an effective way to protect steel from corrosion.

Galvanizing shall provide a barrier and cathodic protection from corrosion. During the galvanizing process, the complete aerial ladder sections shall be immersed in molten zinc. Through diffusion, the zinc shall bond to the steel at the molecular level. The resulting zinc coating shall provide a barrier that shields the steel from the environment.

One (1)

Y__N__

AERIAL LADDER SECTIONS -- CORROSION PROTECTION WARRANTY

A galvanized steel corrosion protection warranty shall be provided for the aerial ladder sections for a period of twenty-five (25) years

One (1)

Y__N__

FLY SECTION -- EGRESS SECTION PAINTING

The fly section shall have a bolt-on egress section. The egress area shall be painted Red in color.

One (1)

Y__N__

HANDRAIL STAINLESS STEEL

The handrails at the aerial turntable shall be knurled stainless steel. They shall be powder coated red in color.

One (1)

Y__N__

AERIAL LADDER BED

A heavy duty ladder bed shall be provided for support of the aerial in the travel position.

One (1)

Y__N__

GALVANIZED OUTRIGGERS

The aerial outriggers assemblies, beam, outer jack tube, inner jack tube, jack cover plate, and jack pad shall be galvanized.

The outriggers shall be galvanized inside and out. The process shall eliminate the rusting, scratching or paint chips on the outriggers. The galvanizing process shall permeate the metal and shall not be an "over-coating only" on outside surfaces. The galvanized components shall lessen the potential for corrosion and eliminates the requirement for finish paint. The process shall negate any later requirement for touch-up paint or total repaint of the outrigger/stabilizer assemblies.

The galvanizing shall provide the steel outriggers with both barrier and cathodic protection from corrosion. The galvanizing process shall immerse the complete outrigger components in molten zinc. The galvanizing diffusion process shall allow the zinc to bond to the steel, at the molecular level. The galvanized zinc coating shall provide a barrier that shields the steel from the environment.

One (1)

Y__N__

AERIAL OUTRIGGERS/STABILIZERS -- CORROSION PROTECTION WARRANTY

A galvanized steel corrosion protection warranty shall be provided for the aerial outriggers and stabilizers for a period of twenty-five (25) years. The conditions of the corrosion protection warranty shall be as follows.

One (1)

Y__N__

GALVANIZED CORROSION PROTECTION -- TORQUE BOX ASSEMBLY

The torque box shall be hot dip galvanized inside and out. The galvanizing shall include the top and bottom and sides of the torque box, outrigger electrical compartment, and outrigger valve control compartment.

The torque box shall be totally hot dip galvanized. The galvanizing process shall not be an over-coating only to outside surfaces but shall permeate the metal. The galvanizing process shall prevent or greatly lessen rust and corrosion on the torque box and in areas between the torque box and chassis frame rails, as well as areas which cannot be reached when washing the unit and which cannot be visually inspected, and shall eliminate the need to finish paint the torque box.

The galvanizing process shall provide the steel torque box assembly with both barrier and cathodic protection from corrosion. The galvanizing process shall immerse the complete torque box component in molten zinc. The galvanizing diffusion process shall allow the zinc to bond to the steel, at the molecular level. The galvanized zinc coating shall provide a barrier that shields the steel from the environment.

One (1)

Y__N__

AERIAL TORQUE BOX -- CORROSION PROTECTION WARRANTY

A galvanized steel corrosion protection warranty shall be provided for the aerial torque box for a period of twenty-five (25) years. The conditions of the corrosion protection warranty shall be as follows.

One (1)

Y__N__

AERIAL LADDER RUNG SPECIFICATIONS

For ease of climbing the ladder rungs shall be equally spaced on a maximum 14" centers and minimum 11.75" centers and shall have a skid-resistant surface or covering.

For added safety, skid-resistant rung covering shall be provided. The rung covering shall not twist and shall cover at least 60 percent of the climbing area of each rung.

Round rungs shall be provided and shall have a minimum outside diameter of 1-1/4", including the skid-resistant surface or covering.

For maximum strength, the minimum design load for each rung shall be 500 lb distributed over a 3-1/2" wide area at the center of the length of the rung with the rung oriented in its weakest position.

NON-SKID AERIAL RUNG COVERING

Each aerial rung shall be covered with two (2) pieces of a protective, 3-M safety walk non- skid material.

One (1)

Y__N__

AERIAL WEAR PADS

The aerial wear pads shall be "PET" type and shall incorporate semi-crystalline hardness, rigidity, mechanical strength with exceptional sliding properties and very low sliding wear. The pads shall be used between the telescoping sections for maximum weight distribution, strength, and smooth operation. Side wear pads shall be nylatron GSM, stainless steel adjustment screws shall be provided on the side wear pads to permit proper side clearance.

One (1)

Y__N__

AERIAL SIGN BRACKETS

The aerial manufacturer shall supply aerial sign brackets welded to the base section of the aerial. These brackets shall be located on both sides of the base section.

One (1)

Y__N__

EXTENSION MARKINGS

To improve safety and to provide the operator with vital information, extension markings shall be provided. For best visibility the base section of the ladder shall include markings on the outside of the left handrail and the inside of the right handrail to indicate extension position of the ladder in operation. The markings shall be BLACK numbers that will mark every 10 feet with a hash mark between the numbers.

One (1)

Y__N__

FOLDING STEPS -- FLY SECTION

The ladder shall be equipped with two (2) folding steps, one on each side of the ladder at the upper end of the fly section. These steps are spring loaded to hold in the stowed position. Once lowered, steps lock in the lowered position for use.

When steps are in the use position there shall be approximately a 7-1/2" diameter circular space for a hose to be placed on the rungs. The folding steps shall comply to applicable standards of NFPA #1901.

One (1)

Y__N__

ROPE RESCUE EYELETS -- FLY SECTION

Two (2) rope rescue eyelets shall be installed one on each side at the tip of the fly section, each anchor being rated at 250 pounds, for a total combined weight rating of 500 pounds.

One (1)

Y__N__

MOUNTING PLATE FOR AXE AND PIKE POLE -- FLY SECTION

Welded-in mounting plates shall be installed for the axe mounting on the right side and a pike pole mounting on the left side of the fly section.

One (1)

Y__N__

MOUNTING BRACKETS FOR PIKE POLE

Bolt on mounting brackets for a pike pole shall be installed on the mounting plates on the located on the left side of the tip of the fly section.

One (1)

Y__N__

ROTATION SYSTEM

The rotation system shall be powered by a hydraulic motor to drive an eccentric planetary gearbox, capable of field adjustment, to rotate the aerial.

A 43.6" pitch diameter external tooth bearing shall be provided for 360 degree continuous rotation in either direction. As turntable bearing bolts are required to be checked and re-torqued at regular intervals, to make this task relatively simple, the ability to re-torque all bolts from the top of the turntable is mandatory.

The bearing shall be bolted to the bearing base plate using sixty (60) 5/8" SAE Grade 8 bolts and shall also be bolted to the turntable using fifty five (55) 5/8" SAE Grade 8 bolts.

A hydraulic release spring applied brake shall provide a positive lock for the rotation.

Two [2] pressure relief valves shall control the force of the rotation to protect the aerial from excessive side loads.

One (1)

Y__N__

AERIAL CONTROL CONSOLE

Aerial Control Operating System

The aerial control system is monitored by programmable logic control. The programmable logic control operating system must be able to monitor the following functions 50 times per second to offer maximum safety. The monitored aerial control functions are as follows:

Aerial Speed

The speeds of all aerial functions are proportionally regulated by the elevation and extension of the aerial. The aerial shall have proportional slow down on full extension and full retraction. The elevation system shall proportionally reduce the speed at sixty (60) degrees and ramp to off at full elevation. Lowering shall proportionally reduce the speed at three (3) degrees and ramp to off at minus ten (-10) degrees. When the aerial is fully retracted the aerial speed shall be 20 percent faster than when fully extended.

The turntable control console shall have a toggle switch to energize the hydraulic system for the aerial functions. The switch shall have three (3) functions, "high speed", "low speed", and "off". All ladder controls operate at high (full speed) or low (reduced speed). Each aerial "Soft Touch" control handle shall lock in the neutral position. With the ladder control handle activated the RPM's shall increase to 1,250 RPM and maintain there for two (2) seconds after returning to the neutral position. An emergency stop button shall be used for emergency stopping and shall return the system to the "off" position, allowing the engine speed to return to normal idle speed and the hydraulic system to de-energized.

Cab and Body Collision Protection

Programmable cab and body collision protection will have three (3) amber lights to indicate Right Rotation Disabled, Down Disabled and Left Rotation Disabled. The lights shall illuminate when aerial functions (right rotation, left rotation or lowering) are disabled. All three lights shall illuminate when the E-STOP is pushed or the outrigger interlock is active.

Auto Bedding

The aerial shall have a momentary switch for auto bedding. Activation of the momentary switch when the aerial is within 20 degrees left or right of the ladder bed, below 20 degrees elevation and 75 percent retracted will automatically bed the aerial.

Rung Alignment

The aerial rung alignment light shall be monitored by an absolute encoder system. The indicator light shall illuminate when the rungs are aligned for the safety of climbing the aerial.

Joystick Controller & Aerial Command Seat

The Aerial Command Seat (ACS) shall be mounted at the turntable control stand for comfort and ease of operating the aerial. All aerial and monitor functions shall be controlled from a single joystick controller. The joystick, through the use of a dead man switch, controls the raise/lower, left/right and extend/retract functions of the aerial and has built in ramp up and ramp down capabilities. A single switch on the joystick converts the aerial functions to the monitor functions, raise/lower, left/right and stream shape.

Short Jack Outrigger

Programmable logic control system allows the aerial to rotate over the short jacked outriggers, when the aerial is within the safe operating parameters of the programmable logic control program. A red warning light at the outrigger and aerial operator's control consoles shall warn the operator that one (1) or more outriggers have been short set. In the event the vehicle has been set up with one (1) or more of the outriggers short set, any rotation of the turntable to an unsafe short set outrigger shall automatically ramp the rotation of the turntable to a feather-soft stop and allow the operator to return to safe operating parameters.

Aerial Load Gauge

An aerial load gauge shall give a continuous reading of the load on the device. This gauge shall have a green light showing the load on the ladder, an amber light will tell the operator when the

aerial is nearing the rated load and a red light will flash at the point where rated load capacity is reached. Additionally, there shall be a pulsating warning horn that shall sound if the ladder is overloaded by 0 - 10% of its rated capacity. The horn shall emit a constant sound when rated capacity is exceeded by more than 10%. If the ladder is over loaded the extension and lowering ability of the aerial shall be disabled until the weight can be removed or shifted.

Aerial Control Panel

The turntable shall have the control console mounted on the left side with the following items on the panel:

- One (1) switch for High/Off/Low
- One (1) switch for auto bedding
- One (1) tip light switch
- One (1) turntable tracking light switch (panel light and tracking lights will be connected to this switch)
- One (1) rung alignment light
- One (1) emergency pump switch
- One (1) system pressure gauge, 0-5,000 psi minimum
- One (1) emergency stop button
- One (1) red light to indicate when outriggers are not fully extended
- One (1) switch to lock all aerial functions
- One (1) dual function joystick for aerial and monitor controls
- Three (3) lights green, amber, and red with audible alarm for the aerial load system display
- Three (3) amber lights for left rotation disable, down disable, and right rotation disable.

The system shall be capable of performing simultaneous outrigger functions or simultaneous aerial functions.

Console Cover and Lighting

Three (3) turntable work lights shall be provided on the turntable for added operator visibility and safety.

One (1)

Y__N__

TURNTABLE SHAPE --TWO SIDED

The turntable shall be two sided (left and rear) with the corners cut to allow for personnel to enter and exit the turntable. The turntable walking area shall be covered with NFPA #1901 compliant skid resistant aluminum tread plate material, with a 2-1/2" lip. Two (2) 42" high, slip resistant covered handrails capable of withstanding a 225 pound force applied from any direction shall be installed on the turntable.

One (1)

Y__N__

MANSAVER BARS -- TURNTABLE OPENINGS

Two (2) Fire Research Man Saver bars shall be installed on the left and right side of the turntable. The safety bars shall lift either upward or inward to open, and be spring loaded to automatically return to the horizontal closed position. The safety bar assembly shall be made of aluminum and stainless steel. The length of bar shall be: 20" on the left hand side and 24" on the right hand side.

One (1)

Y__N__

HYDRAULIC HIGH PRESSURE OIL FILTER

The hydraulic system shall be equipped with a 'high pressure' hydraulic oil filter between the pump and the control valve designed to meet the flow requirements of the system. The high pressure filter will have a dirty element light on the outrigger panel for the convenience of the mechanic. It will include a light on the panel.

One (1)

Y__N__

HYDRAULIC OIL RETURN LINE FILTER WITH LIGHT

A 10 micron low pressure return line filter element shall be connected to the hydraulic reservoir. The 10 micron return line replaceable filter element with a dirty filter indicator light shall be located on the outrigger control panel.

One (1)

Y__N__

AERIAL LOAD CHART -- TURNTABLE CONTROL STAND

An aerial load chart shall be mounted on the base section of the aerial to supplement the load gauge installed on the aerial control console. The load chart shall include the height and reach and the load at six (6) different angles with and without water. An arrow will be attached to the load chart to indicate the angle of elevation. To comply with NFPA standards the load chart shall be illuminated by a light.

One (1)

Y__N__

AERIAL TURNTABLE CONSOLE

The aerial control console will be constructed from smooth aluminum. The back of the control panel will have one (1) full hinged door. The front of the control panel will have one (1) 8" x 8" hinged door. These doors are provided for maintenance and emergency operation of the aerial.

One (1)

Y__N__

TORQUE BOX

The torque box connecting the turntable to the outriggers shall provide the rigidity needed for the aerial to be operated at -12 degrees to a +75 degrees elevation and full extension.

The torque box shall have approximate dimensions of:

1. 43" inside width
2. 26" inside height
3. 247" long (the back shall be open for ground ladder storage)

One (1)

Y__N__

AERIAL OUTRIGGERS AND STABILIZER SPECIFICATIONS

The aerial device outriggers and stabilizers shall be designed to function with the Smart Aerial operational components. The system shall have a pad that pivots left-to-right and front-to-rear.

Aerial Set-Up Requirements

With the stabilizers set, the aerial device shall be capable of being raised from the bedded position to maximum elevation and extension and rotated 90 degrees. Two or more of these functions shall be permitted to be performed simultaneously. These functions are required to be completed within 75 seconds or less, no exceptions.

Extension Beams

The extension beams shall entirely enclose the extension cylinders to prevent damage to the rods and hoses. Each outrigger shall be controlled independently with one (1) joystick controller, which can extend and lower the outrigger at the same time or raise and retract the outrigger at the same time.

A double box design shall enclose the jack cylinders completely to protect the rods from damage that could result from exterior circumstances.

Jack Cylinders

The jack cylinders shall have pilot operated check valves for both the raised and lowered positions. Each jack tube shall be drilled for mechanical pin locks for a safety backup.

The outrigger jack cylinders shall be mounted so they can be removed from the top of the outrigger jack tube. Jack cylinders that are removed from the bottom of the outrigger jack tube will not be accepted.

Outrigger Deployment Alarm and Warning System

The outrigger deployment alarm, of not less than 87 DBA, shall sound at all times while the outrigger master switch is in the on position and stops sounding only when the outrigger switch is turned off. The audible alarm shall warn personnel that outrigger movement is possible at any time the switch is on.

A red LED flashing light shall be mounted to the inside of the vertical outrigger jack beam. The aerial master switch shall activate the lights.

An amber indicator light shall be located on the outrigger control panel for each outrigger to indicate when the outrigger jack is supporting enough load to be in firm contact with the ground.

Safety Features

The outrigger system provides the following safety features:

1. Amber indicator light at the outrigger control station shall indicate circuit completion to show that the unit is ready for aerial operation.
2. Red warning lights at the outrigger and aerial operator's control consoles shall warn the operator that one (1) or more outriggers has been short set.
3. An aerial/outrigger interlock system shall be provided to prevent the lifting of the aerial from the nested position until the operator places all jacks in the load supporting configuration. An electrical can-bus encoder system at the ladder pivot prevents operation of the outriggers once the aerial has been elevated from the nested position.
4. Ground illumination lights shall be provided to illuminate the area directly under the outriggers for each extending outrigger.

5. Each outrigger shall have an auto retracting string-pot that shall be wired to the smart aerial can-bus system to indicate that the outriggers are stowed. A light will be provided in the cab to alert the operator.

Outrigger and Stabilizer Specifications

The specified outriggers and torque box system shall provide a 1-1/2 to 1 stability safety factor when the aerial is in any operating position.

The stability requirements shall be met by the apparatus on which the aerial device is mounted when that apparatus is in a service-ready condition but with all normally removable items such as water, hose, ground ladders, and loose equipment removed.

The aerial device shall be capable of sustaining a static load 1-1/3 times its rated capacity in every position in which the aerial device can be placed when the apparatus is on a slope of 5 degrees downward in the direction most likely to cause overturning.

All outriggers and stabilizers that protrude beyond the body of the apparatus shall be striped or painted with reflective material so as to indicate a hazard or obstruction. Each outrigger or stabilizer shall also be provided with one or more red warning light(s) located either on the stabilizer or in the body panel visible on the side of the apparatus where the stabilizer is located.

One (1)

Y__N__

FRONT AND REAR OUTRIGGERS

Two (2) front and two (2) rear out and down outriggers shall be provided on the apparatus. The rear outriggers shall be located directly behind the rear axle and the front outriggers shall be located front of the torque box connected to the frame.

The outrigger assemblies shall consist of the following components:

1. A 2" inside diameter cylinder with a 1.125" outside diameter rod shall extend and retract the outrigger 48".
2. A 5" inside diameter cylinder with a 3" outside diameter rod shall raise and lower each jack tube a distance of 22".

Outrigger Spread

The total width from the center of pivot pin to center of pivot pin when the outriggers are fully extended shall be: 15' 6".

One (1)

Y__N__

SHORT-SET OUTRIGGERS

The aerial device shall be equipped with a Smart Aerial system for short-jacking.

A short-set outrigger is an outrigger that is not out at least 96 percent of its total extension capability. The smart aerial limits aerial functionality based on extension of all outriggers.

Short-set front outriggers shall not affect ladder movement while the ladder is less than 2 degrees or greater than 50 degrees of rotation on either side of the ladder bed and less than 45 degrees elevated.

Short-Set rear outriggers shall not affect ladder movement while the ladder is within 50 degrees either side of the ladder bed and less than 45 degrees elevated.

If a short-set restriction is active, the Outrigger Not Extended indicator light at all ladder control stations shall flash rapidly.

The smart aerial shall monitor the outrigger placement of all outriggers and the elevation extension and load on the aerial to determine if the aerial can rotate safely over a short set outrigger.

One (1)

Y__N__

OUTRIGGER CONTROL PANEL

The outrigger control panel shall have a switch to energize the hydraulic system for outrigger functions. The switch shall increase the engine speed to 1,200 RPM when in the "ON" position. In the "OFF" position, the engine speed shall return to normal idle speed and the hydraulic system shall be de-energized.

Control Panel

The control panel shall include the following:

1. Manual override system to override the outrigger-aerial interlock system
2. One (1) switch to start and stop all aerial and outrigger operations.
3. One (1) switch for the emergency power unit.
4. Amber indicating lights shall signal when the outriggers are extended or supporting sufficient load.
5. A pulsing beeper shall be activated when the outrigger system is in use.
6. One (1) red flashing light shall be provided to indicate if outriggers have been short set.
7. One (1) aerial hour meter connected to the PTO shall be installed at the outrigger control station.
8. One (1) hydraulic pressure filter indicator light.

AMBER INDICATING LIGHTS

If an outrigger is extended and not lowered an amber indicator light shall flash rapidly, indicating the jack cylinder is not supporting any load. If the outrigger is fully extended and the jack cylinder is supporting sufficient load the amber indicator light shall be solidly lit. If an outrigger is short-jacked the amber indicator light shall flash slowly.

All Smart Aerials can operate all functions over a short-jacked outrigger. If the aerial were to become overloaded or unsafe the ladder would slow to a smooth stop and the right disable, left disable or down disable light shall illuminate indicating the direction the operator is no longer able to rotate. The aerial can operate away from the unsafe position with one operator.

One (1)

Y__N__

MANUAL OUTRIGGER CONTROL VALVES

The aerial shall be equipped with four (4) out and down outriggers. These units shall be equipped with manual outrigger control valves. The controls shall be located at the rear and to the outside of the chassis. This location shall give the operator full view and control of each outrigger. All controls handles shall move in the same direction as the outrigger movement.

One (1)

Y__N__

SIDE TO SIDE AND FRONT TO REAR LEVELING GAUGES

A leveling gauge shall be installed on the rear to show when the apparatus is level from side to side. A second gauge shall be provided on the rear to show when the apparatus is level from front to back. The approximate size of the leveling gauges shall be 3" x 1-1/2".

One (1)

Y__N__

OUTRIGGER AUXILIARY PLATES

An auxiliary outrigger plate shall be provided for each outrigger. The units shall be 2' x 2' in size, one for each outrigger made from 1/2" aluminum with a handle for easy movement.

One (1)

Y__N__

OUTRIGGER SHIELD LIGHTS

Warning lights shall be located on the outside of the outrigger shield. The lights will be wired to the chassis warning lights switch located in the cab.

One (1)

Y__N__

OUTRIGGER STOWED INDICATOR

An outrigger stowed indicator light will be provided in the cab to show that one or more outriggers are not in the stowed position. The light will be connected to the door ajar / outrigger extend light in the cab.

One (1)

Y__N__

OUTRIGGER ACCESS PANELS -- EXTENSION PANELS

Outrigger access panels shall be located on the body of the aerial to allow easy access to the outrigger extension cylinders. These panels shall be located beside the outrigger jack cylinder.

One (1)

Y__N__

OUTRIGGER WARNING SIGNS

The outrigger shields shall have warning signs installed to warn of dangers in operation of the outrigger system.

One (1)

Y__N__

AERIAL LADDER CAPABILITIES -- 1000GPM

The following are aerial ladder and water capabilities for the operation of this unit in the unsupported configuration with the truck level, the outriggers fully extended and lowered to relieve the chassis weight from the axles. The capabilities are based upon 360-degree continuous rotation and up to full extension.

Ladder Operations

ELEVATION

CAPABILITIES

-10 Degrees to 30 Degrees

500 pounds at the outermost rung of the fly section or 1,000 pounds evenly distributed

30 Degrees to 45 Degrees

500 pounds at the outermost rung of the fly section or 1,500 pounds evenly distributed

45 Degrees to 60 Degrees	750 pounds at the outermost rung of the fly section or 2,000 pounds evenly distributed
60 Degrees to 75 Degrees	1000 pounds at the outermost rung of the fly section or 2,500 pounds evenly distributed

Ladder Operations with 1000 GPM Water Flowing

The following capabilities are based upon continuous 360-degree rotation and up to full extension.

The aerial ladder and water system shall be designed to permit the following flows:

1,000 GPM	90-degrees to the side of the ladder centerline
1,000 GPM	135-degrees down from a line parallel to the centerline

FLOW / ELEVATION

CAPABILITIES

-10 Degrees to 45 Degrees	500 pounds at the outermost rung of the fly section or 750 pounds evenly distributed
45 Degrees to 60 Degrees	500 pounds at the outermost rung of the fly section or 1,500 pounds evenly distributed
60 Degrees to 75 Degrees	500 pounds at the outermost rung of the fly section or 2,000 pounds evenly distributed

The above ratings shall be based on average weight of personnel on the ladder at 250 pounds each.

The ladder meets the 2:1 safety factor requirement for material based on the weight of the ladder plus a 500 pound live load at the tip of the fly, flowing 1,000 GPM of water at 90 degrees to the side of the platform at zero degrees elevation.

One (1)

Y__N__

4" WATERWAY SWIVEL

There shall be a 4" waterway swivel with 360 degrees continuous rotation. It shall be installed through the turntable and torque box to connect the aerial waterway plumbing from the water pump to the aerial. The hydraulic oil for the aerial shall be directed through a three-port hydraulic swivel with 360 degrees continuous rotation.

The swivel will be a modular three component swivel. It will have a separate electrical swivel, hydraulic swivel and waterway swivel that when connect with form one component. Therefore if the waterway swivel or another component were damaged the aerial electrical swivel and hydraulic swivel will still be able to run properly and the waterway swivel shall be the only swivel to be replaced.

One (1)

Y__N__

TELESCOPING WATERWAY --AERIAL

A aerial waterway shall be provided from the base of the aerial device to the tip of the fly section. The aerial telescoping aluminum waterway shall be fabricated of aluminum and shall have four (4) tubes as follows:

1. 5" outside diameter at the base section
2. 4-1/2" outside diameter at the lower mid-section,
3. 4" outside diameter at the upper mid-section
4. 3.5" outside diameter at the fly section

Monitor Installation & Retractable

An electronically controlled monitor with nozzle shall be mounted to a retractable pan capable of being pinned to the end of the fly section or the next lower-section by a single lever handle.

The lever handle latching to the forward position connects the monitor to the fly and the lever handle latching to the back position connects the monitor to the next lower-section. Aerial ladder shall be retracted when moving the retractable waterway handle.

Monitor controls shall be located on the retractable pan and on the aerial control console. All electrical connections shall be directly connected to the monitor.

One (1)

Y__N__

WATERWAY QUARTER-TURN VALVE -- BELOW WATER SWIVEL

One (1) 4" quarter-turn butterfly valve for the waterway system shall be installed. The valve shall be air operated and shall be mounted directly below the water swivel.

The air operated butterfly valve control shall be on the pump panel.

One (1)

Y__N__

WATERWAY RELIEF VALVE

One (1) 3/4" relief valve shall be installed above the butterfly valve.

One (1)

Y__N__

SINGLE DISPLAY AERIAL WATERWAY FLOW METER

One (1) Class 1 Single Display Flowminder, part number FMS 9483, shall be provided. The digital pressure gauge includes large super bright digits for excellent readability in all types of emergency situations. Wires transmit signals from a transducer to the display so there is no water sensing lines to freeze up and cause problems.

One (1)

Y__N__

FLOWMETER LOCATED AT TURNTABLE

The flowmeter display shall be located at the turntable control stand.

One (1)

Y__N__

AERIAL RADIO REMOTE CONTROL

There shall be a radio receiver for the aerial and monitor controls supplied at the aerial control panel and powered by the chassis 12-volt electrical system. The radio receiver shall have proportional outputs to drive the 12-volt electric proportional aerial control hydraulic valve as well as on/off output for monitor control.

The radio remote control transmitter/receiver shall be powered by two AA batteries, which shall be included at time of delivery, and shall operate approximately 300 feet from the truck. The transmitter/receiver shall have a belt strap for comfortable operation of the three (3)

proportional aerial functions (raise/lower, extension/retraction, and swing left/right) and the three (3) toggle switches for monitor functions (shape/stream, up/down and left/right operations); One (1) switch to select left or right monitor. The remote will also include an ON/OFF and HI/LOW switch and a push button switch to enable the aerial controls and another switch shall change the frequency. One (1) LCD panel will give continuous readings of the percent of the aerial live load, aerial elevation, aerial extension and rotation.

One (1)

Y__N__

STYLE 3578 STREAM MASTER ELECTRIC MONITOR

An Akron Brass, model 3578, 2000 GPM rated monitor shall be provided at the end of the waterway. The monitor is an all electric single waterway monitor constructed of lightweight Pyrolite with a 4", 150 pound flange inlet and 3.5" thread outlet with cast-in turning vanes in each elbow. The monitor shall have fully enclosed motors and gears with manual overrides for both horizontal and vertical rotation. The manual override shall have captive cranks, one for horizontal and one for vertical rotation, and may be used simultaneously.

The monitor is not to exceed 16-1/4" high and 12-1/4" wide. The rotation of the monitor is from 0 degrees to 135 degrees below horizontal elevation. The logic box shall include coated, solid state components to resist water corrosion.

Three (3) toggle switches shall be located at the turntable aerial control stand and at the tip of the aerial. The switches will control the raise/lower, stream/shape, and left/right functions of the monitor. The controls at the aerial control stand will override the controls at the tip of the aerial.

One (1)

Y__N__

STYLE 5177 AKROMATIC 1250 ELECTRIC MASTER STREAM NOZZLE

An Akron Brass item 51770001 Akromatic 1000 electric combination fog and straight stream master stream nozzle with automatic flow mechanism shall be installed on the Akron monitor. The nozzle shall be constructed of durable, lightweight Pyrolite and shall have electric pattern section from straight stream to wide fog controlled by a 12 volt motor and linear ball screw, a manual override pattern control knob, built-in stream shaper, and 3.5" NH swivel.

One (1)

Y__N__

AERIAL COMMUNICATION SYSTEM

The two station intercom communication system shall have the master station at the turntable and secondary intercom and speaker at the tip of the aerial.

The master station shall have a volume control and a push-to-talk button. The remote station shall operate "hands free" and constantly transmit to the master station and speaker, unless the master station push-to-talk button is pressed.

The intercom shall be designed for exterior aerial application. Each station shall have a weather resistant and protective housing and water resistant speakers.

One (1)

Y__N__

ATKINSON INTERCOM

The Atkinson Dynamics Intercom AD26C master intercom and the AD26D slave intercom are designed for use in rugged, physical conditions and challenging acoustic environments. The durable construction is ideal for use on fire apparatus, emergency vehicles or any other mobile command equipment. The Atkinson Intercom provides high volume, clear audio communication.

The system is designed to provide clear communication for all personnel with minimum connections.

The remote unit, installed at the ladder tip, continuously transmits to the base stations. Base station units include a Push-to-Talk (PTT) button to transmit to other intercom positions.

One (1)

Y__N__

SCENE LIGHTS -- 120 VOLT FLY SECTION

One (1) Fire Research Optimum OPA570-S75-ON lamphead shall be provided on the tip of the fly section of the ladder. The lamphead mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamphead mounting arm bottom. The lights shall be activated from the tip light switch on the turntable and from a switch on the lamphead.

The lamphead shall have one (1) quartz halogen 750 watt 120 volt bulb.

The bulb shall be accessible through the front. The lamphead shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamphead shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. Lamphead and brackets shall be powder coated white.

One (1)

Y__N__

TRACKING LIGHTS -- 12 VOLT BASE SECTION

Two (2) Collins model #CD-FX-HID spotlights shall be installed at the lower end of the base section ahead of the lift cylinders of the ladder. The lights shall have spot type bulbs. These are to be activated from the turntable tracking light switch on the turntable and from a switch on the lamphead.

One (1)

Y__N__

TIP LIGHTS -- 12 VOLT FLY SECTION

Two (2) Collins model # CD-FX-HID spotlights shall be installed at the upper end of the fly section. The spotlights shall have spot type bulbs. The lights shall be activated from the tip light switch on the turntable and a switch on the lamphead.

One (1)

Y__N__

120 VOLT RECEPTACLE -- FLY SECTION

One (1) 120-volt AC circuit shall be run through the collector ring swivel, with a 20 amp receptacle mounted on tip of fly section.

TWIST LOCK RECEPTACLE

The receptacle(s) shall be 120 volt 20 amp twist-lock three prong type with a weather proof cover.

One (1)

Y__N__

LADDER RUNG LIGHTING

The ladder rungs of each aerial section shall be equipped with 12-volt LED rope lighting. The rope lighting shall run the full length of the climbing portion of each section. These lights shall be activated from the turntable tracking light switch.

One (1)

Y__N__

BLUE RUNG LIGHTS

The ladder rung lights shall be "blue" in color part number LED-BL-12V.

One (1)

Y__N__

HYDRAULIC SYSTEM

The hydraulic system shall have a load sensing, variable gallonage, hydraulic piston pump with a 12-volt pressure reducing system. To reduce the normal time for aerial set up, the hydraulic pump shall be of the load sensing design. The hydraulic system shall have sufficient oil flow to provide the capability of performing multiple functions simultaneously without reducing operating speeds of the selected functions.

The hydraulic oil for the aerial shall be directed through a hydraulic swivel with 360 degrees continuous rotation. Enclosed in the hydraulic swivel shall be a minimum of twenty (20) electrical collector rings and a maximum of thirty-six (36) electrical collector rings with 360-degrees continuous rotation.

The hydraulic pump shall be large enough to provide oil to meet all of the requirements needed for aerial and outrigger operation standards.

A pressure reducing valve set at 500 PSI above the system pressure shall be connected to the hydraulic pump. This pressure reducing valve shall be a safety device for hydraulic pump failure. The hydraulic oil shall be directed through high pressure hydraulic hose and tubing.

The hydraulic system shall be designed to direct oil to the outriggers only while the ladder is in the bedded position. The oil can be directed to the aerial operation only when all of the outriggers are supporting sufficient load. This operation is made available through the use of electrical diverter valves with a manual override system for safety backup.

Hydraulic System Installation

The non-sealing moving parts of all hydraulic components, whose failure results in motion of the aerial device, shall have a minimum bursting strength of four times the maximum operating pressure to which the component is subjected.

Dynamic sealing parts of all hydraulic components, whose failure results in motion of the aerial device, shall not begin to extrude or otherwise fail at pressures at or below two times the maximum operating pressure to which the component is subjected.

Static sealing parts of all hydraulic components, whose failure results in motion of the aerial device, shall have a minimum bursting strength of four (4) times the maximum operating pressure to which the component is subjected.

All hydraulic hose, tubing, and fittings shall have a minimum bursting strength of at least three times the maximum operating pressure to which the components are subjected.

All other hydraulic components shall have a minimum bursting strength of at least two times the maximum operating pressure to which the components are subjected.

The hydraulic system shall be provided with an oil pressure gauge at the control station position.

Hydraulic Reservoir

The hydraulic system shall be supplied by a 40 gallon oil tank with a 10 micron filter on the return line and a 200 mesh filter on the pump inlet side.

A means for checking and filling the hydraulic reservoir shall be readily accessible.

The fill location shall be conspicuously marked with a label that reads "Hydraulic Oil Only."

Instructions for checking and filling the hydraulic reservoir shall be provided.

The hydraulic system components shall be capable of maintaining, under all operating conditions, oil cleanliness and temperature that comply with the component manufacturer's recommendations.

One (1)

Y__N__

HYDRAULIC DRAIN LINE

One (1) quarter turn shut-off valve shall be connected in the drain line of the hydraulic oil tank..

One (1)

Y__N__

HYDRAULIC OIL VALVE CONTROL

One (1) quarter turn shut-off valve shall be supplied between the suction line of the hydraulic oil tank and the inlet of the hydraulic pump.

One (1)

Y__N__

HYDRAULIC SYSTEM -- ELEVATION SYSTEM

The hydraulic elevation system shall have two (2) 6" inside diameter cylinders that have 3-1/2" diameter rods and a 36" stroke. The elevation system shall elevate the aerial from -10 degrees to +75 degrees. The cylinders shall be equipped with spherical bushings to minimize cylinder rod wear. Each cylinder shall have lock valves connected directly to the barrel of the cylinder.

A pressure-reducing valve shall limit the force of the aerial when lowering and the system pressure limits the force when elevating the aerial.

All hydraulic cylinders utilized in the aerial elevation and extension system shall be commercially available and shall be of standard sizes and lengths rather than special sizes or of proprietary manufacture. This requirement is important since it assures quicker parts availability, shorter down time, and less costly replacement parts for cylinders.

One (1)

Y__N__

HYDRAULIC PUMP DRIVE SYSTEM

An electrical start-stop "hot shift" PTO shall be mounted to the transmission. The PTO shall be connected to the hydraulic pump and shall supply power for all aerial and outrigger operations. Electrical safety wiring shall require that the vehicle be in neutral and the parking brake set before the PTO will operate. A "PTO Engaged" indicator light is installed in the cab of the apparatus.

One (1)

Y__N__

HYDRAULIC PUMP DRIVE SYSTEM -- AERIAL AND GENERATOR

The transmission mounted power-take-off shall drive both the hydraulic aerial system and hydraulic generator. The dual pumps shall be "piggy-backed" together on the power-take-off.

One (1)

Y__N__

EMERGENCY HYDRAULIC SYSTEM -- 12VOLT

An emergency hydraulic system shall be provided for capability for limited ladder functions and to stow the ladder and outriggers in case of prime mover failure.

The emergency system shall be powered from the 12-volt electrical system from the apparatus battery system and shall not be load managed.

One (1)

Y__N__

CASCADE SYSTEM

The City owns a Cascade System that is currently installed on a rescue apparatus located at 325 Metcalf Street, Sedro-Woolley, Washington.

The Cascade System shall be installed so that it is functional. The Bidder is responsible for picking up and delivering the City's Cascade System from Sedro-Woolley to the factory.

A compartment shall be constructed to fit the following:

Cascade system (Breathing air system) Model # 05/4913, 26"W x 23" D x 43" H

Hose Reel (Hannay Reels Inc.) Model # EFH 1514-14-15 LT HGH 15" x 15" x 15"

Hose reel shall be wired into the vehicle's electrical system.

3 Air bottles shall be mounted in a secure location and plumbed to the cascade system the air bottles are 56" tall. The exact location will be reviewed at the pre-construction meeting.

Three (3)

Y__N__

INSPECTION TRIPS

The intent of this section is to ensure that the City has the opportunity to see the factory, work directly with personnel responsible for fabricating the apparatus prior to completing final design, to view and potentially modify the apparatus during construction and to inspect the apparatus after construction but before delivery.

Three (3) inspection trips for Fire Department personnel shall be made to the factory as follows:

- A. Pre-inspection. Two (2) representatives of the City.
- B. Mid-Construction. Four (4) representatives of the City.
- C. Pre-delivery. Two (2) representatives of the City.

Bidder shall coordinate the timing of the inspection trips with the Chief; Chief shall be responsible for booking air and hotel reservations. Air travel from Bellingham (BLI) to nearest airport to factory, meals and lodging expenses shall be included in bid and paid directly by Bidder.

One (1)

Y__N__

PERFORMANCE BOND

A 100% Performance Bond, which guarantees delivery AND performance must be supplied by the successful bidder at time of award of contract. Supply Bonds will not be accepted in place of the requested Performance Bond. Bond must be supplied by the manufacturer of the apparatus. Bonds furnished by the salesman or other agents will not be accepted. Bidder shall indicate the intention to provide the required performance bond in the proposal packet.