Fire & Specialty Equipment Company, LLC

April 7,2022

Division of Central Purchasing
200 East Main Street, Room 338
Lexington, Kentucky 40507

Reference: # 38-2022 Triple Combination Pumper

Ladies & Gentlemen,

On behalf of Seagrave Fire Apparatus, LLC and your local Seagrave Dealer, Fire & Specialty Equipment Company LLC, I am pleased to submit the enclosed proposal for consideration for the purchase of one (1) Seagrave Capital Pumper. We have reviewed your specifications in full and have prepared a proposal, which meets or exceeds the specified requirements.

The cab we are proposing is our "Top of the line" Stainless Steel Capital cab that is well known throughout the industry as the strongest and safest cab available. Your apparatus will be designed, engineered and manufactured with the most utmost attention to your personal's safety and the day to day demands of Lexington Fire Department. Seagrave is the oldest manufacturer of Fire Apparatus in the United States since 1881.

I have included with the proposal Lexington Fire complete specifications along with clarifications and exemptions, warranty information, service center and dealer capabilities, PE drawing which represents the vehicle dimensions and layout. Along with a turning radius drawing. As well copies of Insurance certification, Bid Bond and Boilerplate information.

Delivery will be as follows: Unit(s) will be ready for shipment in approximately Five Hundred and Sixty (560) calendar days once the order is fully specified and completely defined and with receipt of the approved update and a signed PE drawing.

1. Prices include 10% Bid Bond and 100 % Performance Bond.
2. Approved price April 8, 2022, thru July 8, 2022: Eight Hundred Twenty-Six Thousand, Nine Hundred Nineteen Dollars ($826,919.00).
3. Approved price July 9, 2022, thru December 31, 2022 – Eight Hundred Forty-Six Thousand, Nine Hundred Nineteen Dollars ($846,919.00).
4. Approved price January 1, 2023, thru June 30, 2023 – Eight Hundred Sixty-Six Thousand, Nine Hundred Nineteen Dollars ($866,919.00).
5. If more than one (1) Pumper is ordered on the same Purchase Order, 1 ½% can be deducted for the 2ND or more identical Pumpers.
6. Please review PREPAY PROGRAM document on 100% Prepay.
7. Price provided includes delivery to the Fire Department.
8. Price provided includes three (3) Familiarization session conducted by Fire & Specialty Equipment Company.

Unless this proposal is accepted within the dates listed, the right is reserved to withdraw this proposition.

Once you have had an opportunity to review the enclosed information, please feel free to contact me with any questions and/or clarifications you may have. We look forward to working with you on this most important investment into your community's future.

Respectfully,

Scott Adkins, Sales Representative
Fire & Specialty Equipment Company, LLC
Kentucky & Indiana Authorized Seagrave Dealer
scott.adkinsfse@gmail.com
502.957.2145

SEAGRAVE FIRE APPARATUS, LLC

PREPAY PROGRAM

Date: 4/8/2022

Customer: Lexington, KY

Model & (Quantitiy): Pumper

Representative Fire & Speciality

Sales Person: Scott Adkins

Delivery 560 days from receipt of a complete order with signed approval drawing.

Advance Payment	**100%**	
Amount of Contract	**$**	**826,919**
Net Discount to Customer	***$***	***30,585***
Prepay Amount to Seagrave	**$**	**796,334**

Anything less than 100% Prepay the discount is given at final invoicing.
Prepay proposal does not include cost of Performance Bond.

105 East 12th Street - Clintonville, WI 54929-1518
PHONE: 715-823-2141 - FAX: 715-823-5769 Main Office/Purchasing
FAX: 715-823-5767 Parts and Service - www.seagrave.com

Fire & Specialty Equipment Company, LLC
Bells Mill Industrial Park
235 Rogers Drive
Shepherdsville, Kentucky 40165
502.957.2145 (p) 502.957.2146 (f)

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LEXINGTON

Lexington-Fayette Urban County Government

Lexington, Kentucky
Horse Capital of the World

Division of Central Purchasing — Date of Issue: March 21, 2022

INVITATION TO BID # 38-2022 Triple Combination Pumper

Bid Opening Date: **April 11, 2022** **Bid Opening Time: 2:00 PM**
Address: All bids must be submitted on line at https://lexingtonky.ionwave.net/

Type of Bid: Price Contract

Pre Bid Meeting: N/A Pre Bid Time: N/A
Address: N/A

Sealed bids will ONLY be received online at https://lexingtonky.ionwave.net/ until **2:00 PM**, prevailing local time on **04/11/2022**. Bids must be submitted/uploaded by the above-mentioned date and time.

Bids are to include all shipping, handling and associated fees to the point of delivery (unless otherwise specified in the bid documents below) located at: Lexington, KY

Check One:	**Proposed Delivery:**
_____Bid Specifications Met __x__Exceptions to Bid Specifications. *Exceptions shall be itemized and attached to bid proposal submitted.*	520 days after acceptance of bid.
Procurement Card Usage—The Lexington-Fayette Urban County Government may be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards? __x__Yes _____ No	

To expedite award, the forms in this document should be completed and uploaded with your bid.

Submitted by: Seagrave Fire Apparatus, LLC
Firm Name

105 East 12th Street
Address

Clintonville, Wisconsin 54929
City, State & Zip

Bid must be signed: x _____ President and CEO
Signature of Authorized Company Representative – Title

Ulisses D. Parmeziani
Representative's Name (Typed or printed)

715-823-2141 715-823-5768
Area Code - Phone – Extension *Fax #*

ulisses.parmeziani@seagrave.com
E-Mail Address

I. GREEN PROCUREMENT

A. ENERGY

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to **www.Energystar.gov**). If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

Key Benefits

These products use 25 to 50% less energy
Reduced energy costs without compromising quality or performance
Reduced air pollution because fewer fossil fuels are burned
Significant return on investment
Extended product life and decreased maintenance

B. GREEN SEAL CERTIFIED PRODUCTS

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to **www.Greenseal.org** to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

C. GREEN COMMUNITY

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes __X__ **No**_____

II. Bid Conditions

A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.

B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.

C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.

D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal

or technical reasons, and to award each part of the bid separately, all parts to one vendor or all parts to multiple vendors.

E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.

F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.

G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.

H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.

I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.

J. All bids mailed must be submitted in the Ion Wave online portal at https://lexingtonky.ionwave.net/

K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.

L. A certified check or Bid Bond in the amount of **5%** percent of the bid price must be attached hereto. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been delivered in accordance with specifications. In the event of failure to perform within the time period set forth in this bid, it is agreed the certified check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.

M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.

N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.

O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.

P. All material furnished hereunder must be in full compliance with OSHA regulations.

Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.

R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.

S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, religion, sex (including pregnancy, sexual orientation or gender identity), national origin, disability, age, genetic information, political affiliation, or veteran status, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly

or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;

(2) The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;

(3) The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and

(4) The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.

The Act further provides:

KRS 45.610. Hiring minorities - Information required

(1) For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.

(2) Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.

KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor

(1) If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.

(2) If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.

(3) The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

It is recommended that all of the provisions above quoted to be included as special conditions in each contract.

In the case of a contract exceeding $250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

U. Any party, firm or individual submitting a proposal pursuant to this invitation must be in compliance with the requirements of the Lexington-Fayette Urban County Government regarding taxes and fees before they can be considered for award of this invitation and must maintain a "current" status with regard to those taxes and fees throughout the term of the contract. The contractor must be in compliance with Chapter 13 from the Code of Ordinances of the Lexington-Fayette Urban County Government. The contractor must be in compliance with Ordinance 35-2000 pursuant to contractor registration with the Division of Building Inspection. If applicable, said business must have a Fayette County business license.

Pursuant to KRS 45A.343 and KRS 45A.345, the contractor shall

(1) Reveal any final determination of a violation by the contractor within the previous five year period pursuant to KRS Chapters 136 (corporation and utility taxes), 139 (sales and use taxes), 141 (income taxes), 337 (wages and hours), 338 (occupational safety and health of employees), 341 (unemployment and compensation) and 342 (labor and human rights) that apply to the contractor; and

(2) Be in continuous compliance with the above-mentioned KRS provisions that apply to the contractor for the duration of the contract.

A contractor's failure to reveal the above or to comply with such provisions for the duration of the contract shall be grounds for cancellation of the contract and disqualification of the contractor from eligibility for future contracts for a period of two (2) years.

V. Vendors who respond to this invitation have the right to file a notice of contention associated with the bid process or to file a notice of appeal of the recommendation made by the Director of Central Purchasing resulting from this invitation.

Notice of contention with the bid process must be filed within 3 business days of the bid/proposal opening by (1) sending a written notice, including sufficient documentation to support contention, to the Director of the Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his/her contention with the bid process. After consulting with the Commissioner of Finance the Chief Administrative Officer and reviewing the documentation and/or hearing the vendor, the Director of Central Purchasing shall promptly respond in writing findings as to the compliance with bid processes. If, based on this review, a bid process irregularity is deemed to have occurred the Director of Central Purchasing will consult with the Commissioner of Finance, the Chief Administrative Officer and the Department of Law as to the appropriate remedy.
Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

III. Procurement Contract Bid Conditions

A. The terms of this agreement shall be for **1** year(s) from the date of acceptance of this contract by the Lexington-Fayette Urban County Government. This agreement may be automatically extended for an additional **1** year(s) renewal. This contract may be canceled by either party thirty (30) days after delivery by canceling party of written notice of intent to cancel to the other contracting party.

B. Price Changes **(Space Checked Applies)**

(XXX)1. Prices quoted in response to the Invitation shall be firm prices for the first 90 days of the Procurement Contract. After 90 days, prices may be subject to revision and such changes shall be based on general industry changes. Revision may be either increases or decreases and may be requested by either party. There will be no more than one (1) price adjustment per year. Requests for price changes shall be received in writing at least twenty (20) days prior to the effective date and are subject to written acceptance before becoming effective. Proof of the validity of a request for revision shall be responsibility of the requesting party. The Lexington-Fayette Urban County Government shall receive the benefit of any decline that the seller shall offer his other accounts.

() 2. No provision for price change is made herein. Prices are to be firm for the term of this contract.

() 3. See bid specifications.

C. If any contract item is not available from the vendor, the Lexington-Fayette Urban County Government, at its option, may permit the item to be back-ordered or may procure the item on the open market.

D. All invoices must bear reference to the Lexington-Fayette Urban County Government Purchasing document numbers which are being billed.

E. This contract may be canceled by the Lexington-Fayette Urban County Government if it is determined that the Bidder has failed to perform under the terms of this agreement, such cancellation to be effective upon receipt of written notice of cancellation by the Bidder.

F. No substitutions for articles specified herein may be made without prior approval of the Division of Central Purchasing.

The Affidavit in this bid must be completed before your firm can be considered for award of this contract.

AFFIDAVIT

Comes the Affiant, Ulisses D. Parmeziani, and after being first duly sworn under penalty of perjury as follows:

1. His/her name is Ulisses D. Parmeziani and he/she is the individual submitting the bid or is the authorized representative of Seagrave Fire Apparatus, LLC, the entity submitting the bid (hereinafter referred to as "Bidder")
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."
7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught. x U. D. P.

STATE OF WISCONSIN

COUNTY OF WAUPACA

The foregoing instrument was subscribed, sworn to and acknowledged before me by Kathleen H. A. Kettenhoven on this the 5th day of April, 2022.

My Commission expires: April 12, 2024

KATHLEEN H. A. KETTENHOVEN
Notary Public
State of Wisconsin

NOTARY PUBLIC, STATE AT LARGE

Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.

EQUAL OPPORTUNITY AGREEMENT

Standard Title VI Assurance

The Lexington Fayette-Urban County Government, (hereinafter referred to as the "Recipient") hereby agrees that as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation, it will comply with Title VI of the Civil Rights Act of 1964, 78Stat.252, 42 U.S.C. 2000d-4 (hereinafter referred to as the "Act"), and all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, (49 CFR, Part 21) Nondiscrimination in Federally Assisted Program of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964 (hereinafter referred to as the "Regulations") and other pertinent directives, no person in the United States shall, on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance from the U.S. Department of Transportation, including the Federal Highway Administration, and hereby gives assurance that will promptly take any necessary measures to effectuate this agreement. This assurance is required by subsection 21.7(a) (1) of the Regulations.

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- Section 503 of the Rehabilitation Act of 1973 states: *The Contractor will not discriminate against any employee or applicant for employment because of physical or mental disability.*
- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.
- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states: T*he Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.*

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, veteran status, disability and age.

X _____ Seagrave Fire Apparatus, LLC

Signature Ulisses D. Parmeziani, President and CEO Name of Business

GENERAL PROVISIONS OF BID CONTRACT

By signing the below, bidder acknowledges that it understands and agrees with the following provisions related to its bid response and the provision of any goods or services to LFUCG upon selection by LFUCG pursuant to the bid request:

1. Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good. All applicable state laws, ordinances and resolutions (including but not limited to Section 2-33 (Discrimination due to sexual orientation or gender identity) and Chapter 13 (Licenses and Regulations) of the Lexington-Fayette Urban County Government Code of Ordinances, and Resolution No. 484-17 (Minority, Women, and Veteran-Owned Businesses)) and the regulations of all authorities having jurisdiction over the project shall apply to the contract, and shall be deemed to be incorporated herein by reference.

2. Failure to submit ALL forms and information required by LFUCG may be grounds for disqualification.

3. Addenda: All addenda and IonWave Q&A, if any, must be considered by the bidder in making its response, and such addenda shall be made a part of the requirements of the bid contract. Before submitting a bid response, it is incumbent upon bidder to be informed as to whether any addenda have been issued, and the failure of the bidder to cover any such addenda may result in disqualification of that response.

4. Bid Reservations: LFUCG reserves the right to reject any or all bid responses, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.

5. Liability: LFUCG is not responsible for any cost incurred by bidder in the preparation of its response.

6. Changes/Alterations: Bidder may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the bid response, and received by LFUCG prior to the scheduled closing time for receipt of bids, will be accepted. The bid response when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid response".

7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from any bidder.

8. Bribery Clause: By his/her signature on its response, bidder certifies that no employee of his/hers, any affiliate or subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.

9. Additional Information: While not necessary, the bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the bid response. Additional documentation shall not serve as a substitute for other documentation which is required by the LFUCG to be submitted with the bid response.

10. Ambiguity, Conflict or other Errors: If a bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the bid request of LFUCG, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.

11. Agreement to Bid Terms: In submitting its bid response, the bidder agrees that it has carefully examined the specifications and all provisions relating to LFUCG's bid request, including but not limited to the bid contract. By submission of its bid response, bidder states that it understands the meaning, intent and requirements of LFUCG's bid request and agrees to the same. The successful bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to bidder shall be authorized for services, expenses, or goods reasonably covered under these provisions that the bidder omits from its bid response.

12. Cancellation: LFUCG may unilaterally terminate the bid contract with the selected bidder(s) at any time, with or without cause, by providing at least thirty (30) days advance written notice unless a different advance written notice

period is negotiated prior to contract approval. Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.

13. Assignment of Contract: The selected bidder(s) shall not assign or subcontract any portion of the bid contract with LFUCG without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.

14. No Waiver: No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this bid proposal or bid contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.

15. Authority to do Business: Each bidder must be authorized to do business under the laws of the Commonwealth of Kentucky and must be in good standing and have full legal capacity to provide the goods or services specified in the bid proposal. Each bidder must have all necessary right and lawful authority to submit the bid response and enter into the bid contract for the full term hereof including any necessary corporate or other action authorizing the bidder to submit the bid response and enter into this bid contract. If requested, the bidder will provide LFUCG with a copy of a corporate resolution authorizing this action and/or a letter from an attorney confirming that the proposer is authorized to do business in the Commonwealth of Kentucky. All bid responses must be signed by a duly authorized officer, agent or employee of the bidder.

16. Governing Law: This bid request and bid contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this matter, the bidder agrees that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division and that the bidder expressly consents to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to these matters or any rights or obligations arising thereunder.

17. Ability to Meet Obligations: Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against bidder or, to the knowledge of the bidder, threatened against the bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of bidder to perform its obligations under this bid response or bid contract, or which question the legality, validity or enforceability hereof or thereof.

18. Price Discrepancy: When applicable, in case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers then total amount bid per line item.

19. Bidder understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Bidder is an independent contractor at all times related to the bid response or bid contract.

20. Contractor [or Vendor or Vendor's Employees] will not appropriate or make use of the Lexington-Fayette Urban County Government (LFUCG) name or any of its trade or service marks or property (including but not limited to any logo or seal), in any promotion, endorsement, advertisement, testimonial or similar use without the prior written consent of the government. If such consent is granted LFUCG reserves the unilateral right, in its sole discretion, to immediately terminate and revoke such use for any reason whatsoever. Contractor agrees that it shall cease and desist from any unauthorized use immediately upon being notified by LFUCG.

21. If any term or provision of this bid contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

U D. P

Signature
Ulisses D. Parmeziani, President and CEO

04/05/2022

Date

WORKFORCE ANALYSIS FORM

Name of Organization: Seagrave Fire Apparatus, LLC

Categories	Total	White (Not Hispanic or Latino)		Hispanic or Latino		Black or African-American (Not Hispanic or Latino		Native Hawaiian and Other Pacific Islander (Not Hispanic or Latino		Asian (Not Hispanic or Latino		American Indian or Alaskan Native (not Hispanic or Latino		Two or more races (Not Hispanic or Latino		Total	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Administrators	10	8	1			1											
Professionals	41	37	3					1									
Superintendents	33	30	2	1													
Supervisors																	
Foremen																	
Technicians	38	29	1	2		4		1						1			
Protective Service																	
Para-Professionals	33	11	18							4							
Office/Clerical																	
Skilled Craft	212	164	34	2		2	1			1		8					
Service/Maintenance	4	3	1														
Total:	371	282	60	5		7	1	2		5		8		1			

Prepared by: Todd Woodward **Date:** 4 / 4 / 2022

(Name and Title) Todd Woodward, Director Human Resources

Revised 2015-Dec-15

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310
Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT WE Seagrave Fire Apparatus, LLC
105 East 12th Street, Clintonville, WI 54929
as Principal, hereinafter called the Principal, and Lexon Insurance Company
a corporation duly organized under the laws of the State of Texas
as Surety, hereinafter called the Surety, are held and firmly bound unto Lexington-Fayette Urban County Government
200 East Main Street, Room 338, Lexington, KY 40507
as Obligee, hereinafter called the Obligee, in the sum of Five Percent of Amount Bid
Dollars ($ 5%),
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Custom Capitol Seagrave Pumper; Bid #38-2022

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and materials furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 31st day of March, 2022

Kathleen Kettenhoven
Kathleen Kettenhoven (Witness)
WITNESS

Seagrave Fire Apparatus, LLC
(Principal) (Seal)
By:
Ulisses D. Parmeziani President and CEO (Title)

Sarah E. DeYoung
Sarah E. DeYoung (Witness)

Lexon Insurance Company
(Surety) (Seal)
By: Cathy Hutson
Attorney-in-Fact Cathy Hutson

LEXON INSURANCE COMPANY CORPORATE SEAL MARCH 16, 1984 STATE OF TEXAS

This bid bond is given with the condition that should Seagrave Fire Apparatus, LLC be low bidder and/or awarded this contract, the Surety's obligation does not extend to the warranty provision of the contract and any performance/payment bond will have the same condition.

SOMPO INTERNATIONAL
INSURANCE

POWER OF ATTORNEY

9109

KNOW ALL BY THESE PRESENTS, that **Endurance Assurance Corporation**, a Delaware corporation, **Endurance American Insurance Company**, a Delaware corporation, **Lexon Insurance Company**, a Texas corporation, and/or **Bond Safeguard Insurance Company**, a South Dakota corporation, each, a "Company" and collectively, "**Sompo International**," do hereby constitute and appoint: **Cathy Hutson, Sarah E. DeYoung, Daniel J. Kwiecinski, Daniel J. Sapiro** as true and lawful Attorney(s)-In-Fact to make, execute, seal, and deliver for, and on its behalf as surety or co-surety; bonds and undertakings given for any and all purposes, also to execute and deliver on its behalf as aforesaid renewals, extensions, agreements, waivers, consents or stipulations relating to such bonds or undertakings provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Company for any portion of the penal sum thereof in excess of the sum of **ONE HUNDRED MILLION Dollars ($100,000,000.00)**.

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Company as fully and to the same extent as if signed by the President of the Company under its corporate seal attested by its Corporate Secretary.

This appointment is made under and by authority of certain resolutions adopted by the sole shareholder of each Company by unanimous written consent effective the 15th day of June, 2019, a copy of which appears below under the heading entitled "Certificate".

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the sole shareholder of each Company by unanimous written consent effective the 15th day of June, 2019 and said resolution has not since been revoked, amended or repealed:

RESOLVED, that the signature of an individual named above and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, each Company has caused this instrument to be signed by the following officers, and its corporate seal to be affixed this 15th day of June, 2019.

Endurance Assurance Corporation
By: Richard M Appel
Richard Appel; SVP & Senior Counsel

Endurance American Insurance Company
By: Richard M Appel
Richard Appel; SVP & Senior Counsel

Lexon Insurance Company
By: Richard M Appel
Richard Appel; SVP & Senior Counsel

Bond Safeguard Insurance Company
By: Richard M Appel
Richard Appel; SVP & Senior Counsel

ACKNOWLEDGEMENT

On this 15th day of June, 2019, before me, personally came the above signatories known to me, who being duly sworn, did depose and say that he/they is an officer of each of the Companies; and that he executed said instrument on behalf of each Company by authority of his office under the by-laws of each Company.

By: Amy Taylor
Amy Taylor, Notary Public - My Commission Expires 5/9/23

CERTIFICATE

I, the undersigned Officer of each Company, DO HEREBY CERTIFY that:

1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of each Company and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
2. The following are resolutions which were adopted by the sole shareholder of each Company by unanimous written consent effective June 15, 2019 and said resolutions have not since been revoked, amended or modified:

   "RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Company any and all bonds, undertakings or obligations in surety or co-surety with others: RICHARD M. APPEL, BRIAN J. BEGGS, CHRISTOPHER DONELAN, SHARON L. SIMS, CHRISTOPHER L. SPARRO, MARIANNE L. WILBERT

   ; and be it further

   RESOLVED, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for and on behalf of the Company."
3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this 31st day of March, 2022.

By: Daniel S. Lone, Secretary

NOTICE: U. S. TREASURY DEPARTMENT'S OFFICE OF FOREIGN ASSETS CONTROL (OFAC)

No coverage is provided by this Notice nor can it be construed to replace any provisions of any surety bond or other surety coverage provided. This Notice provides information concerning possible impact on your surety coverage due to directives issued by OFAC. **Please read this Notice carefully.**

The Office of Foreign Assets Control (OFAC) administers and enforces sanctions policy, based on Presidential declarations of "national emergency". OFAC has identified and listed numerous foreign agents, front organizations, terrorists, terrorist organizations, and narcotics traffickers as "Specially Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's website – https://www.treasury.gov/resource-center/sanctions/SDN-List.

In accordance with OFAC regulations, if it is determined that you or any other person or entity claiming the benefits of any coverage has violated U.S. sanctions law or is a Specially Designated National and Blocked Person, as identified by OFAC, any coverage will be considered a blocked or frozen contract and all provisions of any coverage provided are immediately subject to OFAC. When a surety bond or other form of surety coverage is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC. Other limitations on the premiums and payments may also apply.

Any reproductions are void.

Surety Claims Submission: LexonClaimAdministration@sompo-intl.com
Telephone: 615-553-9500 Mailing Address: Sompo International; 12890 Lebanon Road; Mount Juliet, TN 37122-2870

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/30/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Sara Schmidt	
Hays Companies Inc. 1200 North Mayfair Road Suite #100 Milwaukee WI 53226	PHONE (A/C, No, Ext): (414)443-0000	FAX (A/C, No):
	E-MAIL ADDRESS:	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: Hartford Fire Insurance Company	19682
INSURER B: Travelers Property Casualty Co of Amer	25674
INSURER C: Indian Harbor Insurance Co.	
INSURER D: Certain Underwriters at Lloyds	
INSURER E: Great American E&S Insurance Co.	
INSURER F:	

INSURED
Seagrave Fire Apparatus, LLC
105 E. 12th Street
Clintonville WI 54929

COVERAGES **CERTIFICATE NUMBER: 21** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [ ] PRO-JECT [X] LOC [ ] OTHER:	X		83 UEN OK9956	6/1/2021	6/1/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $	1,000,000 300,000 10,000 1,000,000 2,000,000 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS	X		TJ-CAP-8E090058-TIL-22	1/1/2022	1/1/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $	1,000,000
C	[ ] UMBRELLA LIAB X OCCUR X EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $			SXS005675001	6/1/2021	6/1/2022	EACH OCCURRENCE AGGREGATE	$ $	5,000,000 5,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [ ] N/A If yes, describe under DESCRIPTION OF OPERATIONS below			UB-1L956215-22-51-H	1/1/2022	1/1/2023	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	500,000 500,000 500,000
D	Excess Liability			B0595XR6765021	6/1/2021	6/1/2022	Limit		$5,000,000
E	Excess Liability			XS 3402987-01	6/1/2021	6/1/2022	Limit		$10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Lexington-Fayette Urban County Government is included as Additional Insureds on the General and Automobile Liability policies when required by written contract. A 30 day notice of cancellation/non-renewal for any reason other than non-payment of premium will be provided to those parties indicated in the written contract.

CERTIFICATE HOLDER

Lexington-Fayette Urban County Government
200 East Main St.
Room 338
Lexington, KY 40507

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
James Hays/JFORTI

Yes | No

- One 10 foot fiberglass I-beam handle pike pole

ENGINE QUESTIONNAIRE

Vendors must complete the questionnaire below regarding manufacturer, dealer and service center information:

MANUFACTURER	DEALER	SERVICE CENTER
Seagrave Fire Apparatus LLC	Fire & Specialty Equipment Company	Fire & Specialty EQ. CO.
Mfg. Address 105 East 12th Street	Dealer Address 235 Rogers Drive	Service Center Address 235 Rogers Drive
City/State/Zip Clintonville,WI 54929	City/State/Zip Shepherdsville KY 40165	City/State/Zip Shepherdsville KY 40165
Mfg. Phone 715-823-2141	Dealer Phone 502-957-2145	Service Center Phone 502-957-2145
Apparatus Model Name DB 50 CA	Number of Days: Contract Award to Delivery 520	Driving miles from LFD to Service Center 70
Overall Length 360.75" Bumper to rub rail 372.0 Bumper to Ladders	Transmission Make and Model ALLISON 3000 EVS	Service Center Sq. Ft. 10,000
Overall Height 113.50" APPROX.	Pump Make and Model WATEROUS 1500 CSU	Service Center Number of Factory Trained 4
Overall Width 103" NOT INCLUSIVE OF MIRRORS AND HANDRAILS	Front Axle Capacity 20,000 LBS.	Service Center Number of Mobile Service 5
Wheelbase 180.50"	Front Axle Loaded Weight(Est.) TBD	Service Center Number of Indoor Service 8 BAYS
Curb-to-Curb Turning Radius	Rear Axle Capacity 24,000 LBS.	Frame Dimension NEED CUSTOMER TO CLARIFY WHICH ONE

2022 Engine Specifications

Yes	No

Engine Make & Model CUMMINS L9	Rear Axle Loaded Weight(Est.) TBD	Frame Resistance To Bending 2,601,600 inch pounds
Engine Torque Rating 1250 LB-FT @1400 RPM	Hose Bed Height from Ground 70" +/- 1"	
Bidder Seagrave Fire Apparatus LLC	Dealer Signature Scott Adkins *scott adkins*	Date 04/07/2022

2022 ENGINE SPECIFICATIONS

TABLE OF CONTENTS

	Yes	No

2022 Engine Specifications

SPECIFICATIONS FOR One (1) TRIPLE COMBINATION PUMPER
FOR THE LEXINGTON KY FIRE DEPARTMENT

Please indicate your verification of the outlined specifications by placing a checkmark next to each section.

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of one (1) complete apparatus equipped as hereinafter specified. These apparatus will be front-line apparatus and subjected to daily use responding to various emergency incidents. These specifications cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. Apparatus shall be constructed of stainless steel. Apparatus and loose equipment proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current editions at the time of contract execution. Loose equipment shall be provided as stated in the following pages. Y

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Further, the bidder shall maintain dedicated service facilities for the repair and service of products. Evidence of such a facility shall be included in the bidder proposal.

Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus.

Each bid shall be accompanied by a set of Specifications consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under the contract shall conform. These specifications shall indicate size, type, model and make of all parts and equipment, and shall provide specifics of construction, construction methods, components and operational data with the bid. A drawing of the proposed apparatus along with turn radius analysis report (including both curb to curb and wall to wall measurements) shall be provided with each bid. Y

	Yes	No
PROJECT FUNDING Fulfillment of this project will be contingent on funding avenues yet to be determined and committed. Final Project funding may potentially be dependent upon bid pricing. Once the bid is submitted and opened at a time, date and location provided by the Lexington Fayette Urban County Government, the bid may not be withdrawn and will stand for ninety (90) calendar days. Bidder shall submit additional pricing effective July 1, 2022, for potential future purchases in single unit increments from one (1) to four (4) units throughout the fiscal year 2022. Fifty percent (50%) of bid price will be issued upon completion of the chassis; final payment will be issued upon apparatus delivery and satisfactory inspection by the Division of Fire. Bidders shall provide an option to negotiate a 100% pre-payment for the apparatus.	Y	
QUALITY AND WORKMANSHIP The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units that require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under "Performance Tests and Requirements." Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of any part for service or repair. All welding personnel that shall be utilized in the fabrication and construction of structural components of the apparatus chassis, body and aerial device shall hold a valid certificate from the AWS - American Welding Society. The manufacturer is required to have an American Welding Society certified welding inspector in the plant during working hours to monitor welding quality.	Y	
DELIVERY SCHEDULE The apparatus shall be delivered to the Lexington Fire Department within 520 days of bid acceptance, or the bidder shall be penalized $500.00 per day for each day over the number of days specified in the bid that the apparatus is not delivered.	Y	N
DELIVERY Apparatus, to ensure proper break-in of all components while still under warranty, **s**hall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified	Y	

	Yes	No
representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered.		
## MANUFACTURER SPONSORED TRAINING The manufacturer will provide to the Lexington KY Division of Fire's Mechanical Bureau, factory level or equivalent repair and or maintenance related training on fire apparatus and or apparatus components within one year of delivery. This training will be the equivalent of eight (8) man days. All expenses associated with providing this training including registration, travel, lodging, meals course materials, etc. shall be the sole responsibility of the manufacturer.	Y	N
## INFORMATION REQUIRED The manufacturer shall supply at the time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A Copy of the manuals shall be provided in both hard copy and electronic format. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.	Y	
## SAFETY VIDEO Documentation provided at the time of delivery shall also include an apparatus safety video, in flash drive. This video shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus. Safety procedures for the following shall be included: vehicle pre-trip inspection, chassis operation, pump operation, and maintenance.		N
## ACCEPTANCE TEST At final inspection, a road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The vehicle shall adhere to the following parameters: • The apparatus, when fully equipped and loaded, shall have not less than 25% or more than 50% of the weight on the front axle, and not less than 50% nor more than 75% on the rear axle.	Y	

	Yes	No

- The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.
- The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- The apparatus, fully loaded, shall be capable of obtaining a speed of 67 to 70 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).
- The apparatus shall be tested and approved in accordance with NFPA Standard Practices and Federal Motor Vehicle Safety Standards (FMVSS).

The manufacturer shall provide a complete demonstration of the fire fighting systems during the final inspection of the completed apparatus. Final acceptance of the apparatus is subject to passing all required third party tests.

Failure To Meet Test

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

Y

Liability

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

Y

Specification Bid Requirements

Proposals taking total exception to specifications shall not be acceptable.
Also, bidders shall submit a detailed proposal. Bid proposals shall be submitted in the same

Y N

Yes	No

sequence as specifications for ease of evaluation, comparison and checking of compliance. A letter only, even though written on company letterhead, shall not be sufficient.
Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specifications will be immediately rejected

EXCEPTIONS

All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the bidder.
Bidders shall also indicate in the "yes/no" column if their bid complies on each item specified. Exceptions shall be clearly identified and fully explained on a separate page. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. The decision as to whether an exception is approved as being equivalent shall be entirely that of the Chief of the Division of Fire.

Y

COMMERCIAL GENERAL LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Products/Completed Operations Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$ 1,000,000

Y

Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy shall include owner as an additional insured when required by written contract.
The policy shall include the owner as an additional insured as their interest may appear.
The required limits can be provided by one or more policies provided all other insurance requirements are met.

COMMERCIAL AUTOMOBILE INSURANCE

The successful bidder shall, during the performance of the contract keep in force at least the following minimum limits of commercial automobile insurance:
Combined Single Limit: $1,000,000

Y

	Yes	No
Coverage shall be written on a Commercial Automobile form.		
UMBRELLA/EXCESS LIABILITY INSURANCE The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance: Aggregate: $25,000,000 Each Occurrence: $25,000,000 The policy shall be written on an occurrence basis and at a minimum provide the same coverage's as Bidder's General Liability, Automobile Liability and Employer's Liability policies. The owner shall be included as an additional insured on the General Liability and Automobile Liability policies as their interest may appear. The required limits can be provided by one or more policies provided all other insurance requirements are met. Bidder agrees to furnish the owner with a current Certificate of Insurance with the coverage's listed above along with its bid. The certificate shall be made out to the purchaser and be an original; no photocopies shall be accepted. The Certificate of Insurance shall provide that owner be given 30 days advance notice of cancellation, nonrenewal or material change in coverage.	Y	
SINGLE SOURCE MANUFACTURER Bids shall only be accepted from a single source apparatus manufacturer. The definition of a single source is a manufacturer that designs and manufactures its products using an integrated approach, including the chassis, cab, and body is fabricated and assembled on the bidder's premises. The warranties relative to the chassis and body design (excluding component warranties such as the engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e., body and chassis). The bidder shall provide evidence that they comply with this requirement.	Y	
NFPA STANDARDS This unit shall comply with the current NFPA standards in effect at the time of the bid. Except for fire department specifications that differ from NFPA specifications. These exceptions shall be set forth in the Statement of Exceptions and shall be indicated in the proposal as "non-NFPA."	Y	
Certification of slip resistance of all stepping, standing, and walking surfaces shall be supplied with the delivery of the apparatus.	Y	

	Yes	No
A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating. The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications. An official of the company shall designate, in writing, who is qualified to witness and certify test results.		
TOTAL VEHICLE ASSESSMENT CERTIFICATION The apparatus shall be audit-certified by an independent third-party, approved by the fire department, to the current edition of NFPA 1901 standards. The certification includes all design, production, operational, and performance testing of the apparatus. (No exception)	Y	
PUMP TEST The pump shall be tested, approved, and certified by a third-party, approved by the fire department at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department at delivery.	Y	
INSPECTION TRIPS The bidder shall provide three (3) factory inspection trips. The inspection trip(s) shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer, typically pre-construction, post-paint and final inspection. All costs such as travel, lodging, and meals shall be the responsibility of the bidder. Transportation is to be commercial air from Lexington, Kentucky, to the nearest commercial airport and ground transportation from the time of arrival until departure.	Y	
Pre-construction The bidder shall plan on three (3) LFD personal traveling for the pre-construction conference. There should be adequate time provided to meet with engineers, project managers, and conduct facility tours.	Y	
Bidder will require a proposed pump panel drawing to be available prior to the trip. Bidder requires meeting with plumbing engineers during the conference.	Y	
Mid-Point Three (3) LFD members will travel for the in-process inspection.		
Final Three (3) LFD members will travel for the final inspection.	Y	

	Yes	No
Adequate time shall be provided for demonstration of firefighting systems and designated electrical options as specified.	Y	
Underside Final Inspection During "Final" Inspection, the complete vehicle shall be raised, allowing the Fire Department Inspection team to walk under the apparatus to review the complete underside.	Y	

WEBSITE

A Customer Service website shall provide authorized dealers access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool shall provide the authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips. This website shall also be accessible to the end user through the guest login. Limited access is available and vehicle-specific parts information accessible by entering a specific VIN number. All end users should see their local authorized dealer for additional support and service. The website shall provide the following to the designated individuals: Ability to access truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc. Parts look-up capability, with the aid of digital photographs, part drawings assembly drawings. Ability to electronically submit warranty claims directly to the factory for reimbursement. Accessibility to multiple dealer reports that allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts. Access to all currently published Operation and Maintenance and Service publications. Access to manufacturer Service Bulletins and Work Instructions containing information on current service topics and recommendations provided. Access to upcoming training classes offered by the manufacturer. Access to interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components. Access to customer service articles, corporate news, quarterly newsletters, and key contacts.		N

	Yes	No

SERVICE CENTER

In order to maintain this complex piece of apparatus, the experience and reliability of the factory authorized service center is of major concern to the purchaser. The service facility must comply with the following criteria in order to be considered:

- Must have a minimum of five (5) years' experience repairing and maintaining fire apparatus of the make and type of apparatus being bid.
- Must have adequate indoor heated service facility and factory-trained technicians to perform repairs, including powertrain, chassis, pump, generator, and controls must be provided. Must be within 150 miles of Lexington, Kentucky. — Y
- Must have a fully equipped mobile shop vehicle to be available for warranty work in Lexington, KY.

The bidder shall submit the location and recent photos of the service center and mobile service unit(s) along with the bid. Purchaser reserves the right to visit and inspect the service center prior to awarding bid.

The contractor is required to provide all warranty service at the Lexington Fire vehicle maintenance facility whenever major shop work is not involved. For warranty service involving transportation to the shop, the apparatus shall be picked up in Lexington, KY and returned from the contractor's facility by their personnel.

While under warranty, if towing or flat bedding of the apparatus to the repair facility is required, it shall be the responsibility of the bidder to provide such service at his cost.

The contractor agrees to keep the apparatus in a secure, indoor heated area at all times while in their possession. It shall be understood that the contractor is responsible for the apparatus and all articles of equipment from the time the apparatus is picked up until is returned to Lexington, KY.

The contractor shall provide proof of insurance coverage of the apparatus to LFD before the apparatus is transported.

REPLACEMENT PARTS

LFD intends to assure that parts and service are readily available, due to concerns over having vehicles, out-of-service for extended periods related to replacement parts availability.

The apparatus shall be furnished with major parts commonly used in manufacturing of heavy-duty trucks and fire apparatus. This helps to ensure replacements parts are more readily available and at a reduced cost to the city. The use of proprietary parts such as axles, suspensions, engines, transmissions, supplemental restraints, electronic controls, seats, pumps, gauges, foam systems, etc. shall not be acceptable. A description shall be provided explaining the parts replacement capabilities of the bidder including information regarding cross — Y

	Yes	No
referencing part numbers from the apparatus manufacturer's part number to the vendor's parts. Replacement part availability and service capabilities will be a major criterion for the award of the bid.		
APPROVAL DRAWING A drawing of the proposed apparatus shall be provided with the bid. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, the location of the lights, siren, horns, compartments, major components, etc. A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.	Y	
BID BOND All bidders shall provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of the bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic Two (2) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract. Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic Two (2) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.	Y	
PERFORMANCE BOND The successful bidder shall provide a signed contract and performance and payment bond, which guarantees the performance of all terms and conditions of the contract and warranty agreement before a purchase order can be issued. The performance bond will specifically	Y	N

	Yes	No
cover the performance of the contract according to its terms and conditions, as well as payment of all related bills and encumbrances. This performance bond shall be issued by a surety company which is listed by the U.S. Treasury Department's list of approved sureties, as published in Circular 570, as of the bid date. The performance bond shall be issued in an amount equal to 100% of the contract amount and shall be dated concurrent to, or subsequent to, the date of the contract.		
GENERAL CONSTRUCTION The design and construction of the apparatus shall embody standard automotive heavy vehicle engineering practices. The apparatus shall be designed, engineered and constructed with due consideration for the severe service nature of the fire service. All parts of the apparatus shall be installed in accordance with the OEM specifications. Distribution of load between the front and rear axles shall be engineered so that all specified equipment, including a filled water tank, full complement of personnel and fire hose shall be carried without damage to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association and current standard automotive practices. The apparatus shall be designed to conform to applicable ANSI and NFPA 1901 standards. The following design criteria shall be applicable to this specification to the extent specified herein: • American Society for Testing Materials (ASTM) - A-36, Specification for Structural Steel • Society of Automotive Engineers, Inc. (SAE) - SAE Handbook • American Welding Society (AWS) - AWSO14.4-77 Classification and Application of Welded Joints for Machinery and Equipment • American Society for Non-Destructive Testing (ASNT) All sensitive components shall be protected against adverse weather conditions. Any exposed metal surface which is not painted or otherwise coated shall have a bright finish. Corrosion protection shall be provided between any dissimilar metals joined in the construction of this apparatus. The specified apparatus shall be a custom cab type; designed, engineered and manufactured specifically for the fire service in North America. The apparatus meets or exceeds the requirements of the NFPA 1901, current edition, in all respects. The cab and body sheet metal shall be constructed of stainless steel, no exception. The cab shell incorporates a protective safety-cage design that totally surrounds and protects the seat belted driver, officer and crew. Chassis shall be a new, heavy-duty, custom fire apparatus design built expressly for the fire service. All standard components that have not been specified shall be provided.	Y	

2022 Engine Specifications	Yes	No
Chassis shall be designed, engineered and built by the bidder and be the manufacturer's first line custom chassis. The chassis shall be suitable for heavy duty service with all components having adequate strength and capacity for the intended load to be sustained and the type of service required.		
CORROSION PROTECTION There shall be a system to prevent corrosion of all underbody components. The builder shall provide a detailed description of the corrosion protection process.	Y	
SIGN – VEHICLE DIMENSION AND WEIGHT A sign shall be provided in the front cab area indicating the height of the completed apparatus in feet and inches, length of the completed apparatus in feet and inches, and the gross vehicle weight rating (GVWR) in tons.	Y	
SEATING CAPACITY The seating capacity in the cab shall be five (5).	Y	
MAXIMUM OVERALL HEIGHT The maximum overall height of the apparatus shall be 114”.	Y	
MAXIMUM OVERALL LENGTH The maximum overall length of the apparatus shall be approximately 354”.		N
WHEELBASE The wheelbase of the vehicle shall be no greater than 180”.		N
GVW RATING The manufacturer shall be responsible for proper weight distribution upon the chassis and axles. The apparatus when loaded, shall have not less than 25% nor more than 45% of the weight on the front axle and not less than 55% nor more than 75% on the rear axle. A certified weight certificate showing weights on the front axle, rear axle and total weight for the completed	Y	

	Yes	No
apparatus with the water and fuel tanks full, but without personnel, equipment and hose shall be provided at the time of delivery. In accordance with NFPA 1901, it shall be the responsibility of the purchaser to notify the manufacturer in the purchaser's specification of any hose, ground ladders, or equipment to be carried by the apparatus that exceeds the minimum requirements of the NFPA 1901 standard in effect at the time of the bid.		
GROSS VEHICLE WEIGHT RATINGS Front Vehicle Weight Rating shall be: [20,000#] Rear Vehicle Weight Rating shall be: [24,000#] Gross Vehicle Weight Rating shall be: [44,000#]	Y	
VEHICLE PERFORMANCE ANALYSIS REPORT A performance analysis report shall be run on the vehicle, as ordered, using computer software to determine top speed, gradeability, optimum shift points and acceleration on various grades. The report shall be delivered with the completed vehicle, but shall be available prior to engineering of the vehicle.	Y	
FRAME The chassis frame shall be built with two variable section steel channels with a minimum of six (6) cross members. Pump shall not be counted as a cross member. The side rails shall be of heat treated steel with tapering measurements. Each rail shall have a section modulus of 21.7, a minimum elastic limit of 120,000 PSI and a minimum resisting bending moment of 2,601,600 inch pounds. The cross members shall be of heavy duty, fabricated, all-welded design, made out of a minimum of 50,000 psi material. The frame and cross members shall be a bolted assembly utilizing 5/8" flange head grade eight bolts and Spiralock® flange nuts. Spiralock® nuts shall be used exclusively in the frame assembly for mounting spring hangers, steering gear, engine, transmission, etc. because of their ability to maintain a constant torque tension and prevent vibration loosening. Their design shall provide for an even thread load distribution over the bolt, increased fatigue strength and life, and clamping torque. All holes made must be used and any holes in the frame for options not required on this chassis are not acceptable. Frame rails less than or equal to 480" in length shall receive a duo-coat primer: an E-coat followed by a powder coating. This duo-coat process meets 1000 hours of salt spray testing per ASTM B117 test procedure. Frame rails greater than 480" in length shall be powder coated only. The inside of the rails shall be hand re-sprayed to insure coverage. This process	Y	

	Yes	No
meets 240 hours of salt spray testing per ASTM B117 test procedure.		
FRONT NON-DRIVE AXLE The front axle shall be a Meritor MFS with a 20,000-pound capacity. It shall be equipped with oil seals and transparent cover for oil level inspection. If a heavier axle is required, it shall be the responsibility of the builder to propose it.	Y	
Shock Absorbers Gabriel heavy-duty telescoping shock absorbers shall also be provided on the front axle.	Y	
Electronic Roll Stability (ESC) - for Single Axles In compliance with NFPA 1901, current edition standard 4.13.1, the vehicle, as specified, shall be equipped with a Meritor-WABCO electronic Roll Stability Control system that shall utilize a centrally mounted pitch and yaw sensor and steering shaft position sensor interacting with the chassis' ABS traction control, auxiliary braking system and the engine ECM to minimize the vehicle's potential for rollover in a turning at speed maneuver.	Y	
REAR AXLE The rear axle shall be a Meritor model RS-25-160 with a capacity of 27,000 pounds at the hub. All axles shall be purchased complete from and certified by the axle manufacturer for the specific application. Brake chamber brand and size shall be determined by the axle manufacturer. The rear axle shall be equipped with a means to lock the rear axle into a positive traction mode. The lock-up shall be controlled by an illuminated locking style switch mounted on the dash, within easy reach of the driver.	Y	
SUSPENSION The front suspension shall be semi-elliptical 4" x 52" constant rate type springs with a military wrapped eye. The correct material, spring length, width, thickness and number shall be provided to match the leaf spring rating with that of the gross axle weight rating of the vehicle. The rear suspension shall be a Neway AD. 123, 24,000-lb capacity air ride suspension system.	Y	N
BRAKES The vehicle shall be equipped with a WABCO 4S4M anti-lock braking system (ABS). The ABS shall provide four (4) channel anti-lock-up braking control on the (2) front and (2) rear wheels. The system shall employ a digital electronics system with microprocessor controls divided into two (2) diagonal circuits. In the event of one circuit malfunction the second	Y	

circuit shall operate unaffected. Each wheel shall be constantly monitored by the system when the vehicle is in motion. When any wheel begins to lock-up during braking, a signal shall be transmitted to the processor from the wheel sensor. The control unit shall instantly reduce the braking force applied to the wheel and immediately re-apply braking force so that the wheel rapidly slows without locking. The system shall control all wheels simultaneously to provide maximum vehicle braking in a relatively straight line. An ABS warning light shall be installed in the warning light panel of the driver's dash. The ABS system shall automatically disengage the auxiliary braking system whenever the anti-lock braking mode is active. — Y

The service brake system shall be full air type.

The front brakes shall be disc type with a 17.00" ventilated rotor for improved stopping distance.

The rear brakes shall be Meritor 16.50" x 7.00" cam operated outboard drums with automatic slack adjusters.

The brake system shall be certified, third-party inspected, for improved stopping distance. — N

Brake Lines

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis. — Y

ELECTROMAGNETIC BRAKE

A Telma electromagnetic, driveline retarder shall be furnished and mounted within the driveline system. This system shall automatically activate in four-stages to achieve 100% capacity when the brake pedal is applied.

The system shall have an on/off switch and a four-stage indicator to show retarder activation stages mounted on the dash.

The magnetic retarder control shall be through a switch on the dash, with activation of the retarder in conjunction with the brake pedal. The application shall be in progressive stages, (1/4, 1/2, 3/4 & 100 percent). — Y

The system shall disengage with the activation of ABS.

Telma operation shall be determined at the pre-construction conference.

OFFICER EMERGENCY BRAKE

An additional emergency brake control shall be provided on the right hand side of the cab dash in easy reach of the officer. Control shall actuate the rear axle spring brakes only. In addition, the control shall disable the driver's accelerator pedal and shift the transmission into neutral. Brake control shall be a heavy duty toggle type electrical switch equipped with a spring loaded safety cover to prevent accidental brake engagement. Cover shall be red in color. Control switch shall have an identification label and a warning that it is "For — Y

	Yes	No
Emergency Use Only".		
AUTOMATIC TRACTION CONTROL W/ DEEP MUD & SNOW SWITCH Automatic Traction Control, working in concert with the ABS system, shall be provided which shall reduce wheel slip on acceleration on wet or slippery road conditions. A light shall illuminate on the driver's dash when the drive wheels slip during acceleration. A deep snow and mud option switch shall be provided in addition to the ATC option. This function increases available traction on extra soft surfaces like snow, mud or gravel by slightly increasing the permissible wheel spin.	Y	
AIR COMPRESSOR, BRAKE SYSTEM The air compressor shall be a Cummins/Wabco with 18.7 cubic feet per minute output or sized to the demands of the air primer.	Y	
All airline connections shall be of the compression type. “Push on” fittings shall not be used for any air application (brakes or accessories).	Y	
AIR SYSTEM One (1) air inlet with male Type “A” coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose.		
The inlet shall be located in the driver side lower step well of the cab. A check valve shall be provided to prevent the reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system.	Y	
A mating female Type “A” coupling shall also be provided with the loose equipment		
Air Outlet One (1) female Type “A” coupling shall be provided adjacent to the Air Inlet. Air supply shall be dried and filtered. The outlet shall be located in the driver’s side lower step well of cab.	Y	
Air Tank (Additional) An additional air tank shall be provided to increase the capacity of the air system. This tank shall be dedicated to air horn and air primer use. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. No Exceptions.	Y Y	N
Air Tank Drains Heavy duty manual drain valves with pull cables shall be provided on each tank to drain condensation. Drain cables shall be routed to readily accessible location on outer cab/body. Drain cables shall also have sufficient slack built into the design to prevent unintended	Y	

	Yes	No
activation as a result of body flex/movement. The location shall have a permanently placed placard that reads “Drain Daily.”		
AUXILIARY AIR COMPRESSOR Kussmaul vehicle mounted compressor shall be mounted as determined at pre-construction. Compressor shall work off the shoreline and ensure air brake system is pressurized for immediate departure from the station. Shall be equipped with an automatic drain.	Y	
ENGINE INSTALLATION CERTIFICATION The fire apparatus manufacturer shall provide certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of delivery.	Y	
Engine The chassis shall be powered by an electronically controlled engine as described below: • Make: Cummins • Model: ISL9 • Power: 450 hp at 2100 rpm • Torque: 1250 lb-ft at 1400 rpm • Governed Speed: 2200 rpm • Emissions Level: EPA 2010 • Fuel: Diesel • Cylinders: Six (6) • Displacement: 543 cubic inches (8.9L) • Starter: Delco 39MT • Fuel Filters: Spin-on style primary filter with water separator & water-in-fuel sensor. • Coolant Filter: Spin-on style with shut off valves on the supply and return line.	Y	
ENGINE AIR INTAKE A dry-type air cleaner, suitable for the engine being proposed, shall be installed and mounted as to provide easy access for serviceability. An air restriction indicator shall be mounted in the dash panel to provide a warning indication of a clogged air filter. The air intake with ember separator shall be provided and be easily accessible. A Racor Ecolite® dry type engine air cleaner shall be provided. It shall be installed in a location above the chassis frame rails and no less than 40" above the ground. A visual	Y	

	Yes	No
inspection shall be possible without tilting the cab (No Exceptions). The air cleaner shall be serviceable through an access opening of no less than 30" wide by 13" high.	Y	

EXHAUST SYSTEM

The exhaust system shall be stainless steel from the turbo to the inlet of the selective catalytic reduction (SCR) device, and shall be 4.00" in diameter. The exhaust system shall include a diesel particulate filter (DPF) and an SCR device to meet current EPA standards. An insulation wrap shall be provided on all exhaust pipe between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the passenger side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust at the exit. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.	Y	
Exhaust Modification The exhaust pipe shall be brought out from under the body at a 90-degree angle from the truck. The tailpipe shall extend a minimum of 2.00" past the body, terminating with a flange for a Plymovent magnetic attachment system. The diameter of the pipe shall be 6.00". There shall be a clearance of 4.00" completely around the pipe once past the side of the body.	Y	

DIESEL EXHAUST FLUID TANK

A minimum 10 gallon diesel exhaust fluid (DEF) tank, constructed of polyethylene, shall be provided and mounted in the driver's side rear cab step area. There shall be an access door that provides easy access for refilling the DEF tank. The tank shall be fillable without lifting cab (no exceptions). The tank shall be easy to remove for service. There shall be a DEF fluid level sensor provided in the tank and connected to a gauge on the dash of the cab. All metal mounting components shall be stainless steel. A .50" drain plug shall be provided in a low point of the tank for drainage. The tank shall meet the engine manufacturer’s requirement for 10% expansion space in the event of tank freezing. The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.	Y	

COOLANT OVERFLOW RESERVOIR

A six (6) quart coolant overflow reservoir shall be provided. It shall be accessed in the officer's step well. A hinged aluminum tread plate door with small D-ring handle shall be provided for access. A visual inspection shall be possible without tilting the cab (NO EXCEPTIONS). The aluminum tread plate door shall be properly labeled.	Y	

2022 Engine Specifications	Yes	No
RADIATOR The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards. For maximum cooling performance, the radiator core shall be made of aluminum fins having a serpentine design, soldered to brass tubes. The tubes shall be welded to brass headers using the patented "Beta-Weld" process for increased strength, longer road life, and solder-bloom corrosion protection. Steel supply and return tanks shall be bolted to the core headers and steel side channels to complete the radiator assembly. The radiator shall be compatible with commercial antifreeze solutions. The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators. The radiator shall include an integral de-aeration tank, with a remote-mounted overflow tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap. A drain port shall be located at the lowest point of the cooling system and the bottom of the radiator to permit complete flushing of the coolant from the system. A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.		N
COOLANT LINES Silicone hoses shall be used for all engine/heater coolant lines installed by the chassis manufacturer. Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.	Y	
SKID PLATE A radiator skid plate shall be provided to protect the radiator from debris. The skid plate shall cover the lower radiator tank and shall be painted to match the frame rails.	Y	
FAN CLUTCH A viscous style thermostatically controlled, clutch shall be provided for the engine cooling fan. The clutch shall be of a failsafe design, in that it shall fail in the "on" mode and thus prevent overheating. Manufacturer shall also wire the clutch so that it remains "on" constantly to prevent water pressure fluctuations.	Y	

	Yes	No
ACCESS TO ENGINE DIPSTICKS For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab. The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional tube shall be provided for filling the engine oil. The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.	Y	
FUEL TANK The vehicle shall be furnished with a 65 gallon fuel tank mounted behind the rear axle and just below the frame rails. The tank shall be constructed of stainless steel and equipped with a swash partition and vent. The fuel tank shall meet all FHWA requirements including a fill capacity of 95% of tank volume and all DOT and FMVSS regulations for rollover protection. A 2" diameter fill inlet shall be provided. Fuel cap shall be of brass or bronze construction, non-vented and have lead safety fuses. It shall be chained to inlet tube or to the body sheet metal to prevent loss. Braided hoses shall be provided for the fuel lines. A 1/2" NPT drain plug shall be located at the bottom of the tank. The tank shall be installed using stainless steel straps and hardware, separated from the tank by a rubber insulating strip to prevent against chaffing. The stainless steel fuel fill inlet shall be located on the left (drivers) side of the apparatus. It shall be concealed behind a door. The inside of the door shall be marked "ULTRA LOW SULFUR DIESEL FUEL ONLY". The fuel inlet area, recessed behind the door, shall be completely enclosed to prevent dirt and debris from entering. Provision shall be provided inside the fill recess for drainage of any spilled fuel within the cavity. The fuel door shall be constructed of stainless steel and shall have a brushed finish. It shall be hinged along the vertical side towards the front. A magnet shall hold the door in the closed position. The door shall be kinked along 3 edges with the fourth side being used as s finger grab for opening and closing it. A stainless steel trim ring shall encircle the opening to prevent the fuel nozzle from damaging the surrounding surface when it is opened. The fuel shelf shall be made from a high impact polyethylene material. Four (4) feet of extra fuel line shall be provided, coiled, and secured to the top of the tank.	Y Y	
FUEL LINE SHUTOFF VALVE A fuel line shutoff valve shall be provided to prevent fuel from draining back while changing fuel filters. The fuel line shutoff valve shall be located near the fuel water separator.	Y	

2022 Engine Specifications	Yes	No
FUEL COOLER An engine fuel cooler shall be provided on the apparatus. The engine fuel cooler shall cool the returning fuel from the engine using the water from the water pump.	Y	
TRANSMISSION An Allison electronic automatic transmission shall be provided. The transmission shall be the most current generational design by Allison. The transmission shall be rated to handle the weight of the apparatus when fully loaded. The transmission shall be rated to handle the maximum rated torque output as produced by the chassis engine in all power ranges. A transmission temperature gauge shall be installed on the cab instrument panel. The transmission shall be programmed for Fire Service / aggressive downshifting application. Transmission Shifter A six (6)-speed push-button shift module with the 4 + 2 "Mode" button shall be mounted to the right of the driver on the console. Shift position indicator shall be indirectly lit for after dark operation. The Allison shifter shall be a "double-digit" display model. Transmission Cooler A transmission oil cooler shall be mounted externally.	Y	
DRIVELINE Drivelines shall be a heavy-duty metal tube and be equipped with Spicer 1710 universal joints. The shafts shall be dynamically balanced before installation. A splined slip joint shall be provided in each driveshaft, slip joint shall be coated with Glide coat or equivalent. A grease zerk shall be provided for lubrication of the slip joint.	Y	
POWER STEERING COOLER The apparatus shall be equipped with an integral power steering unit which is rated to steer the front axle capacity. The system will operate mechanically should the hydraulic system fail. The steering wheel shall be capable of tilting and telescoping. A power steering cooler shall be provided. Power steering oil temperature shall not exceed 225°F with an ambient air temperature of 115°F under any operating conditions. The cooler shall be of oil to air type.	Y	

2022 Engine Specifications	Yes	No
FRONT TIRES The two (2) front tires shall be Continental 315/80R22.5, Conti City Service HA3 load range "L", with a nominal rating of 10,000 pounds at a top speed of 68 mph.	Y	
REAR TIRES The four (4) rear tires shall be Continental 12R22.5, HDR2, load range "H", with a nominal rating of 6,780 pounds at a top speed of 75 mph.	Y	
TIRE PRESSURE INDICATORS Tires shall have non-pressure indicators installed for shipment. Accu-Pressure Heavy Duty Safety Caps shall be provided and shipped loose. This valve stem inflation pressure sensitive monitor shall provide a visual color indication of when the tire pressure is below the manufacturers recommended level. The chrome safety cap shall show green when the tire is properly inflated and red once the tire becomes under inflated. All inner wheels shall be equipped with a valve stem extension that shall allow the inner wheel to be filled without removing the outer wheel.	Y	
WHEELS Tires shall be mounted on Alcoa Dura-Bright polished aluminum disc-type wheels with a ten (10) I-stud 11.25" bolt circle.	Y	
BALANCE BEADS Balance Beads shall be installed in all wheels/tires.	Y	
MUD FLAPS Front and rear heavy duty mud flaps shall be provided.	Y	
TIRE CHAINS An On-Spot automatic tire chain system shall be installed on the rear axle. A locking style switch shall be installed on the instrument panel within easy reach of the driver. An indicator light shall be installed in a convenient location for the driver. The On-Spot system shall have the “Brass Cap” option. The onspot system shall be wired on its own electric circuit.	Y	

	Yes	No

CAB INTEGRITY CERTIFICATION

The cab shall be certified for the following tests:

SAE J2420: Cab Over Engine (COE) Front Strength Evaluation - Dynamic Loading - Heavy Trucks

SAE J2422: Cab Roof Strength Evaluation - Quasi Static Loading - Heavy Trucks

ECE Regulation 29: Protection of Occupants of Cab in Commercial Vehicle

Y

Performance Measure:

1. After undergoing each test, the cab of the vehicle shall exhibit a survival space accommodating a 50th percentile male ATD in the median position without contact between the manikin and non-resilient parts for all seating positions.
2. None of the doors shall open during the tests.
3. The cab attachments may be distorted or fractured, however, the cab shall remain attached to the vehicle frame in at least one attachment location.

FRONTAL IMPACT

The cab shall withstand a frontal force produced from 65,200 ft-lbs of energy using a swing-bob type platen.

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of the bid.

Y N

CAB

The cab shall be designed specifically for the fire service and shall provide roll cage strength and safety. The cab shall be made in the factory of the bidder and must be the bidder's top-of-the-line stainless steel model. The cab shall be of the open interior design. The entire cab shall tilt forward 45 degrees for engine access. In order to provide the strongest, safest cab design possible, no extrusions shall be used in the construction of the cab structure. No plastic or fiberglass shall be used in the construction of the cab sub-frame, floor assembly, front assembly, side assemblies, back wall assemblies or roof assembly.

Y

Front Cab Dimensions

The front face of the forward cab shall measure 68" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96". Entrance step wells to the driver's and officer's positions shall be a minimum of 26" wide. Entrance steps shall be made of stainless steel grating.

2022 Engine Specifications

Yes	No
Y	

Crew Cab Dimensions

The back wall of the cab shall measure 68" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96". Entrance step wells to the crew cab positions shall be a minimum of 34" wide. Entrance steps shall be made of stainless steel grating.

Cab Mounting

A four point mounting system shall be provided for the front cab. The mounting system shall consist of two (2) front pivot mounts fabricated of steel and two (2) rearward lock plates attached to the rear cab sub-structure. Each front pivot mount shall consist of a greaseless pin and a multi-layered, self-lubricating, composite bearing. The outer layer of the bearing shall be high-durometer rubber to isolate road vibrations and shock. Each rear lock plate assembly shall consist of two hydraulic actuated locks isolated from the chassis by center bonded rubber mounts.

Sub-Frame

The sub-frame shall be stainless steel reinforced welded safety-cage construction utilizing a 3” x 4” rectangular structural steel tube sub-frame. All joints shall have continuous welds; stitch welding shall not acceptable. The sub-frame shall be designed as a one-piece structure from the front to the back of the cab. It shall be used to support the cab while tilting, join front pivots to the cab locks, and to join the cab to the chassis. Pocketing of the sub-frame shall not be acceptable.

Front Assembly

The safety-cage section at the front of the cab shall be constructed of 1.25” stainless steel tubing and shall join the front door posts together with the main sub-frame. There shall be a 2.50” x 1.50” x .25” heavy wall lower cross tube that joins the cab sills together to prevent cab twisting when tilting the cab. The front fire walls shall be set back from the front assembly structure to provide added protection in a frontal crash. The outer cab skin shall not be an integral structural member, although it shall help stiffen the cab front face. The front cab door hinge mount (aka “A” pillar) shall be a 2” x 2” tube with a .19” thick wall.

Cab Floors

All floor components shall be welded directly to the sub-frame. The floor shall be constructed of 50,000 psi stainless steel. Cab floors shall be covered with a sound barrier mat with a heavy-duty wear surface.

Side Wall Assemblies

The safety-cage on the sides shall be constructed of 1.25” stainless steel tubing. Both side wall assemblies shall be joined to the sub-frame via thick tubular structures, using heavy fillet welds. This shall strengthen the walls to withstand high roof loading. The side wall outer skins shall be integral with the cab structure as well as additional formed components to help stiffen side wall assemblies. There shall be 1.25” of insulating foam between the exterior and interior side walls. The structure shall be reinforced for cab entry grab handle mountings. The

	Yes	No
rear cab door hinge mount (aka “C” pillar) shall be equivalent to a 2.5mm formed channel with .19” thick tapping bar.		
Roof Assembly		
The 1.25” stainless steel tubing used in the construction of the roof section of the safety-cage shall support 2 psi of loading across the whole roof. The fabricated and welded roof sills and front header shall be made of 50,000 psi stainless steel material. The corner caps shall utilize spun metal technology thus retaining the metal’s strength while producing a very rigid corner joint. The side roof covering (rolled edges) shall be constructed of stainless steel formed in a quarter round. It shall form a hollow double wall, angle reinforced roof edge with an integral drip rail. The roof top outer wall shall not be an integral structural member, although it shall stiffen the roof. There shall be 1.25” of insulating foam between the exterior roof and interior ceiling.		
Cab Grille		
The cab front opening shall be covered with a custom made polished stainless steel grille that shall be fabricated in the bidder's factory. The grille shall have formed vertical bars spaced apart on 2" centers. The upper polished stainless steel grille shall have a matching lower counterpart to further facilitate engine cooling. The two (2) stainless grilles shall be housed in a custom, raised and chrome plated bezel.	Y	
Engine Air Inlet Grille & Ember Separator		
A highly polished stainless steel removable grille for engine air intake shall be provided. The air intake grille shall contain the replaceable water and ember separator filter in an integral housing.	Y	
The air intake grille and water/ember separator cartridge shall be located on the side of the cab, above and to the rear of the driver's side steer axle. The engine air intake grill shall be no less than 60" above the ground. A flat roof shall be provided with an interior floor to ceiling height of 59".	Y	
ENGINE TUNNEL		
The engine enclosure structure shall have a 1-1/4" thick inner lining, on the engine side, comprised of aluminized foil and foam/barrier composite for heat insulation. The tunnel cover shall have 1/2" decoupled foam lower and 1" decoupled foam upper covering, on the cab interior side, for noise insulation. The top forward portion of the hood shall have a full-width riser with a sloped face for the installation of the switch panel. The sloped panels shall be used for vehicle accessory controls. A minimum of 1" shall be provided between the right edge of the accelerator pedal and the side of the engine hood. A removable cover over the engine enclosure and insulation shall be coated with black LINE-X to act as an insulator for sound and engine temperature, as well as to provide an easy-to-clean work surface.	Y Y	

2022 Engine Specifications	Yes	No
ACCESSORY MOUNTING STRUCTURE The top portion of the engine enclosure shall have a stainless steel channel frame located between the engine tunnel structure and the cover to support the cover and facilitate mounting of accessories and equipment.	Y	
CREW CAB ENGINE COMPARTMENT ACCESS DOOR An access door shall be provided at the rear of the engine enclosure for routine engine fluid checks. The access door shall be insulated from engine heat with aluminized foil/foam/barrier composite and sealed to prevent exhaust fumes from entering the crew cab.	Y	
FORWARD CAB CENTER TUNNEL REMOVABLE OVERLAY PLATE FOR POWERPOINT ACCESS A removable 9" long x 27" wide x .13" aluminum plate cover shall be provided for access to one (1) space of approximately 7" long x 24" wide beneath the rearmost center tunnel cover immediately to the rear of the center tunnel cover. The space beneath this access area transitions from 1" to 2" deep in the power point/distribution area for center tunnel accessory potential. This plate shall be attached directly to the tunnel cover surface and the plate finish shall match the engine tunnel cover.	Y	
FORWARD CAB CENTER TUNNEL COVER REMOVABLE PLATE-CENTER DASH A removable 27" long x 27" wide x .13" aluminum plate square cover shall be provided for access to two (2) equal spaces of approximately 10" long x 24" wide each beneath the center tunnel cover immediately to the rear of the center dash switch panel area and between the forward cab seating. This plate shall be attached directly to the tunnel cover surface. Its finish shall match that of the engine tunnel cover.	Y	
STEERING WHEEL A padded 18" steering wheel with center horn ring shall be provided. The upper steering column shall be of the tilt and telescopic type. A self-canceling directional switch with wiper control and headlight dimmer control shall be mounted on the steering column with an ICC four way flash switch. The self-canceling directional switch shall be easily removable and replaceable without removing the steering wheel or column assembly. The junction of the	Y	

	Yes	No
shaft and the cab floor shall be sealed to prevent air exchange between the cab interior and exterior.		
REAR WALL COVERING		
An aluminum tread plate overlay shall be provided over the entire exterior rear wall of the cab.	Y	
CAB DOORS		
The forward and crew cab doors shall be barrier clearing and fabricated from stainless steel (No exceptions). The forward and crew cab doors shall be 34.5” wide. The interior and exterior door handles to be flush mounted paddle style with a Trimark TM202 keyed lock incorporated in the exterior handle and lever control lock incorporated in the interior handle. One (1) key per door shall be provided. The crew cab doors shall not include a taper and maintain full width from top to bottom for maximum crew entry and exit access. The door check straps shall be six (6) inch wide 9800 lb woven nylon strap with sewn integral steel reinforcement bars for attachment to cab and cab door. The door's latch locking mechanism shall make it impossible to lock oneself out of the cab unless locked with the supplied key. The door rotary latch mechanisms latch linkage shall be accessible through an access panel integral to the interior door panel. Doors shall be hung on stainless steel full length hinges attached to cab and door with .25" bolts. The hinges for each door shall be of one-piece 304-2B stainless steel construction with stainless steel pins and 0.090 gauge leaves with 2" joints and a 3" width opening. Doors shall meet Federal Motor Vehicle Safety Standard #206. The doors shall be designed so as to allow the tempered laminate windows to roll completely down.	Y	
Cab Door Opening The front cab doors shall open approximately 90 degrees.		
Inner Cab Door Panels The upper inside bolt-on panel on each cab door shall be removable and shall be constructed of aluminum covered with black LINE-X. A mechanically fastened stainless steel map pocket shall be mounted on the front and rear cab doors, centered on the kick plates. The dimensions of the map pocket shall be approximately 10.00” high x 14.00” wide x 1.50” deep.	Y Y	
Reflective Chevron All four (4) cab passenger compartment doors shall have at least 96 square inches of reflective material affixed to the inside of each door to alert traffic when the door is open. The reflective material shall be a chevron design that complies with NFPA requirements.		N N
Doors - (2) Cab		

	Yes	No
Two (2) stainless steel cab side access doors shall be provided on the cab, one each side, to the rear of the front cab entrance doors. Door openings shall be approximately 13.00" wide x 27.00" high. The doors shall fit flush with the exterior skin of the cab and be hung on 304 stainless steel full length hinges attached to the cab and door by 0.25" bolts. The doors shall open a minimum of 90 degrees.	Y	
Cab Side Access Door Latch Position - Upper Part of Door Trimark paddle style latches shall be provided on the upper part of the door.		N
Keyed Locks for (2) Cab Side Access Doors (#1250 Keys) There shall be keyed locks for both the cab side access doors. The driver's side and officer's side access doors shall be keyed alike with #1250 keys.	Y	
Sill Protectors - (2) Cab Side Access Door, Brushed S/S Brushed stainless steel sill protectors, approximately .50" wide, shall be provided on the cab side access door sills to protect the painted finish.	Y	
Cab Side Access Door Lights - (2) ROM LED, (1) Strip Light Per Door Each cab side access door shall have a ROM LED lighting strip installed. The full height lighting strip shall be mounted vertically at the hinged side of the cab door. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door jam, shall be used to activate light.		

CAB INTERIOR

The cab shall be provided with an aluminum tread plate removable back liner. The back liner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance. The cab dash and overhead fasciae shall be a flat faced design to provide ease of maintenance and shall be constructed out of painted aluminum. Overhead console shall be designed in a way to maximize visibility.	Y	N

INTERIOR CAB INSULATION

The cab shall include minimum 1.50" insulation in the ceiling and side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.		N
The cab shall be provided with a removable gray headliner for ease of servicing the electrical wiring placed in the cab roof. The headliner shall consist of 3 layers of material. Next to the roof shall be a layer of acoustical insulation made of polyester and polypropylene fibers. The next layer is 1/4" thick Luann. Finally, there is a 1/4" thick layer of foam/perforated acoustical vinyl. The headliner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.	Y	

	Yes	No
CAB DASH FINISH The cab dash shall be sprayed with black LINE-X having a high resistance to abrasion and tearing. A vinyl cloth glued or laminated in some manner to a metal backing surface shall not be acceptable. The LINE-X shall absorb impact without surface damage. The LINE-X shall be resistant to gasoline, diesel fuel, paints, bleaches, organic solvents and other cleaning agents and chemicals. It shall include sound dampening and vibration elimination properties. The LINE-X shall be solvent free and be environmentally safe to apply with no VOC or CFC hazards. Its surface shall have a non-glare, granular texture and be easily cleaned with common cleansing compounds.	Y	
OVERHEAD DASH The overhead dash shall have a black LINE-X finish. Forward Cab Center Overhead Dash Open Retention Strap A removable, replaceable limit strap assembly shall be provided to prevent contact with the lower center dash panel and to retain the center overhead dash assembly in an open position when open for inspection or when access to the upper center power distribution is required. The strap assembly shall consist of a 2" wide, sewn, nylon strap with a steel footman loop inserted in each sewn looped end of the nylon strap. Each of the two (2) footman loops shall be anchored by two (2) 1/4 inch machine screws. The upper anchor assembly shall be attached to the cab roof structure and the lower anchor assembly shall be attached to the hinged power distribution access panel.	Y	
CAB INTERIOR UPHOLSTERY Two (2) black "head bumper style" elbow pads shall be installed on the engine tunnel inboard of the officer and the driver. They shall be covered in Durawear™ and be fastened to a bracket outboard to the engine tunnel. The finish of the bracket shall match that of the engine tunnel. The assembly shall be positioned approximately 6 inches rearward of the center dash vertical surface. Note: elbow pads may need to be removed in order to access other components.	Y	
CAB INTERIOR PAINT The cab interior metal surfaces shall be painted black vinyl texture paint, unless finished in Line-X as otherwise specified.	Y	

2022 Engine Specifications	Yes	No
WINDSHIELD The windshield shall be of tinted automotive laminated safety plate glass with a curved two-piece design. The windshield shall have approximately 2900 square inches of visual area. Right and left hand windshield glass shall be symmetrical and interchangeable from side to side to minimize spare parts stock and expense. Windshield shall be installed and held in place by an extruded rubber molding with a bright finish, decorative, locking bead. Cab shall be finish painted prior to windshield glass being installed. Glass shall be available from a local vendor.	Y	
DOOR GLASS A retractable window with automotive type laminated safety glass shall be provided in all four (4) forward hinged cab doors. All glass shall be tinted. Glass shall slide in stainless steel side channels with cloth/fiber liners. Rubberized fiber seals shall be located at the bottom of the window opening to prevent water and debris from entering the interior of the door when the glass is up (or down). A seal shall be placed on both sides (interior and exterior) of the glass. The front door glass shall be 23.75" high x 25.75" wide upper and 27.50" wide lower. The rear door glass shall be 23.75" high x 30" wide. The door window openings shall be trimmed on the exterior side with a smooth, black, poly vinyl chloride (PVC) molding.	Y	
WINDSHIELD WIPERS One (1) wet arm operated windshield wiper shall be provided for each plate of windshield glass for accessibility and optimum windshield wiping surface areas. Wipers shall be two speed type with intermittent wiping feature. One (1) control switch shall be provided and located on the self-canceling directional switch for both wiper arms. The switch shall combine the on/off (automatic park position), two speed, intermittent and washer functions in one control. The turning switch shall activate the wipers and control speed, and pushing it shall operate the washers. The wiper arms shall park in a low, horizontal position to provide an unobstructed view when not in use. The wipers shall be wired through the parking brake, so they discontinue operation when the parking brake is set.	Y	
WINDSHIELD WASHER FLUID RESERVOIR A five (5) quart windshield washer fluid reservoir shall be provided. It shall be accessed in the officer's step well. A hinged aluminum tread plate door with small D-ring handle shall be provided for access. A visual inspection shall be possible without tilting the cab (NO EXCEPTIONS). The aluminum tread plate door shall be properly labeled.	Y	

2022 Engine Specifications	Yes	No
SUN VISORS Two (2) approximately 8" x 28" padded, black sun visors shall be provided, one on the driver's side and one on the officer's side. Visor shall be supported at both ends to prevent drooping. The sun visors shall each have an adjustment knob that locks the visor position.	Y	
MDT NOTCH Provision for the installation of a mobile data computer (MDC) shall be provided in front of the officer seat. There shall also be provided the required wiring for the MDC on the right side of the cab dash. This shall consist of a 12-volt power and ground pigtail and GPS / data antenna wiring. The location of this power and antenna wiring shall be demonstrated at the final inspection. Access panel shall be installed in the top portion of the dash		N
CAB STEPS The forward cab and crew cab access steps shall be a full-size two-step design to provide the largest possible stepping surfaces for safe ingress and egress. Four (4) fold up intermediate cab steps shall be provided in the step well beneath each door. One (1) step shall be mounted on the forward vertical surface of the step well for each of the cab doors. The steps shall not interfere with the operation of any access doors built into the step wells when folded. The folding intermediate step shall be positioned to divide the height of the step well in half.	Y	
STIRRUP STEPS WITH GRIP STRUT Auxiliary cab entrance steps shall be provided at each cab door opening, below the cab, to reduce the cab entrance step height by approximately 9.50”.	Y	
DRIVER SEAT One (1) H.O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the driver’s position. Seat Belt The driver's seat shall have a 3-point vertically adjustable D Loop style shoulder harness using integrated dual retractor, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.		N

	Yes	No
OFFICER SEAT		
The officer's seat shall be a Bostrom model Tanker 550 rigid mount seat. The seat back shall include a spring loaded flip up headrest and Secure/All bracket designed to accommodate a Scott 1,800 liter cylinder @4,500 psi cylinder. Seat shall be mounted as far back as possible.		N
SCBA Bracket		
One (1) NFPA compliant H. O. Bostrom Secure All™ universal SCBA bracket shall be installed in the seat(s).	Y	
Seat Belt		
The officer's seat shall have a 3-point vertically adjustable D Loop style shoulder harness using integrated dual retractor, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.	Y	
SEAT ADDITIONAL		
Rear seat model Tanker 550 seats shall have the 22" wide cushion. Front seats shall be provided standard 20" cushion.		N
FORWARD FACING CENTER SEATS		
Three (3) Bostrom model Tanker 550 non-suspension seats shall be provided, centered on the rear wall of the apparatus. One (1) NFPA compliant H. O. Bostrom Secure All™ universal SCBA bracket shall be provided in the seat on the driver's side.		N
Seat - (1) Outboard, Forward Facing, Bostrom, 400 SCBA Flip-up	Y	
The rear crew cab section shall contain one (1) outboard flip-up passenger seat. The seat shall be installed on the rear wall of the cab on the driver's side wall. The seating area shall allow maximum room for fire fighters in full turn out gear.		
Seat Belts - Inboard, Forward Facing, 3 Point, Vertically Adjustable (Ea.)		
The forward facing seat(s) shall have a 3-point vertically adjustable D Loop style shoulder harness using integrated dual retractor, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.	Y	
DOOR JAM SCUFF PLATES		
All cab door jambs shall be furnished with a stainless steel scuff plate, mounted on the striker side of the jam.	Y	

	Yes	No
MIRRORS Two (2) Lang Mekra 300 Aero Series Technology Mirrors shall be mounted on each side of the front cab door. Mirror shall be chrome plated, heated, and with four-way power system remote control that is convenient to the driver. The main flat mirror shall provide 120 inches of viewable surface area. There shall be separate heads for the driver's and officer's side housing convex glass and provide 56 square inches of viewing surface. The mirrors shall be installed to reduce the overall width of the cab as much as possible.	Y	
EYEBALL MIRROR An eight (8) inch "eyeball" mirror (K-10 P/N 512115-50S) will be installed on cab officer's side top corner that will allow the driver to have visual access of front bumper from the seated position. The mirror shall have a minimum of two attachment points to the body of the cab.	Y	
FENDER CROWNS All wheel well openings shall be trimmed with replaceable, bolt-in, molded black rubber fenderettes. The fenderettes shall be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Rubber welting shall be installed between the fenderettes and the cab side panel.	Y	
FENDER LINERS Semi-circular inner liners shall be provided in each wheel housing. They shall be constructed o aluminum and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The outside edge of the inner liner shall be bolted along its entire length. The bottom edge of the liner shall not have a formed reinforcement flange to avoid trapping dirt and debris.	Y	
CUP HOLDERS Four (4) cup holder(s) with a black Line-X finish shall be installed in the cab. The cup holder shall be designed for mounting on top of the engine tunnel. The cup holder shall be shipped loose.	Y	

2022 Engine Specifications

	Yes	No
MECHANICAL SIREN		
A Federal Q2B siren shall be furnished. A siren brake button shall be installed on the switch panels located on drivers and officers side.	Y	
The control solenoid shall be powered up after the emergency master switch is activated. The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side, between the left and center hose trays. The siren mounting shall include a reinforcement plate.	Y	
The mechanical siren shall be actuated by two (2) footswitches, one (1) located on the officer's side and one (1) on the driver's side.	Y	
A master switch for the Federal Signal Q2B® siren shall be provided under the driver's side dash. Activation of the master switch shall remove all power to the solenoid.	Y	
The foot switch shall be deactivated when the parking brake is set.		
ELECTRONIC SIREN		
A Whelen electronic siren shall be provided in the cab dash. The siren has a selectable output of 100 or 200 Watts. The microphone shall be removable.		
The siren head shall be wired battery switched. Auxiliary activation switches shall only be active when the emergency master and ignition are activated. Model and location shall be determined at pre-construction conference.	Y	
HANDHELD LIGHT		
There shall be two (2) hand lights provided, Stream light Vulcan lights with the orange thermoplastic body and a 20-watt spot bulb. The two (2) hand lights shall be mounted rear crew cab area. There shall be one (1) Pelican 9430 portable ED light system. The exact location of the hand lights shall be discussed at the pre-construction meeting.	Y Y	
CAB LIFT		
The cab shall tilt a minimum of 45 degrees for normal servicing of the engine and other equipment. The tilt cab locking system shall be a two-point type that locks automatically when the cab is lowered into its nested position. The cab tilt package is custom designed for safety and ease of vehicle maintenance. The hydraulic tilting system consists of two (2) heavy-duty single acting cylinders. The power supply is a high efficiency electric over hydraulic system with an integral mechanical override in case of battery failure. All components and parts are designed for installation with a minimum of 3 to 1 safety factor based on current S.A.E. standards.	Y	

In addition to the velocity fuses, a secondary safety system shall be provided to hold cab in the fully raised position in the event of a failure in the primary lift mechanism. It shall consist of a metal channel device, which automatically drops over the extended rod of the right side hydraulic lift cylinder thereby preventing its retraction. The safety channel can only be released through an overt action made by the operator such as pulling a lever or cable from the right side of the apparatus, near the safety channel. Automatic release of the safety system shall not be acceptable. The cab tilt system shall be remotely controlled utilizing a fifteen foot cable with a hand held push button device, which is stored in an enclosed compartment on the officer's side of the vehicle in the crew cab area.

INTERLOCK CAB LIFT TO PARKING BRAKE

The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set, and the ignition switch is in the on position, if the parking brake is released the cab tilt mechanism shall be disabled. The cab lift control connection shall be moisture proof. — Y

BUMPER

A heavy duty 10-1/4" high x 1/4" thick painted steel bumper shall be mounted to the front of the chassis and be fabricated in the factory of the bidder. The bumper shall be channel shaped with 2" flanges and its ends shall be angled 45 degrees for a distance of 5". The bumper shall be painted to match the lower cab color. — Y

As part of the bumper extension, a second formed channel with 2" flanges shall be provided directly behind the full width of the flat portion of the bumper. The bumper extension support shall be of channel (minimum 9-7/16" x 3" x 3/8") construction, bolted to the chassis frame stub. A 3/16" aluminum tread plate gravel pan (deck) contoured to fit just below the front face above of the cab and just the upper bumper flange shall be provided. The gravel pan shall not be fastened to the top flange of the bumper. A bumper trough shall be installed in the center of the bumper extension. It shall have interior dimensions of 17.75" wide x 20.00" long x 13" deep. It shall be constructed of smooth aluminum and be easily removable from the gravel pan. Drain holes shall be provided. The hose tray shall have capacity to carry 20’ of 5” double Jacket cotton-polyester hose. Black Dri-Dek® shall be provided in the bottom of one (1) front bumper compartment(s). Ramped edging shall not be included. A black polypropylene strap with a seat belt paddle latch buckle shall be provided for the hose well. It shall be permanently attached to the gravel pan on the front and rear of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops. A hose tray constructed of aluminum shall be recessed into the front bumper extension. The tray shall be located on the driver side of the bumper outboard of the frame rail and be — Y

	Yes	No
approximately 14" deep. Bumper tray shall have the capacity for 100' of 1.75" hose and nozzle. A hose tray constructed of aluminum shall be recessed into the front bumper extension. The tray shall be located on the officer side of the bumper outboard of the frame rail and be approximately 14" deep. Bumper tray shall hold 50' of rolled 5" double Jacket cotton-polyester hose. Final dimensions and placement of (3) trays shall be determined at the pre-construction conference.	Y Y	N N

Lift And Tow Mounts

The bumper extension shall be designed and constructed so that the apparatus can be lifted and towed by the extension. Front Tow Eyes Two (2) painted "cut plate" type tow eyes shall be furnished. They shall be installed under the aluminum tread plate "gravel" pan, behind bumper, and securely attached to the bumper extension frame. The eyes shall be fabricated of 1" thick steel plate with a 3" diameter opening. They shall be painted to match the frame/undercarriage. Rear Tow Loops Two (2) painted rear tow loops shall be provided, welded to the underside of the rear step subframe. The loops shall be rated at 9000 pounds straight pull. They shall be painted to match the frame/undercarriage. The lift and tow mounts with eyes shall be painted the same color as the frame.	Y Y	

Grab Handles And Handrails - Cab

Handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish. All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion. Handrails shall be installed as follows: • Four (4) 24" handrails shall be installed on the side of the cab, one just to the rear of each cab door. • Handrails shall have stainless steel sill plates installed on the cab sides behind handles. • Two (2) 6" chrome grab handles shall be provided, one on the inside of each front cab door. • Two (2) 12" rubber covered grab handles shall be provided, one on the inside of each crew cab door.	Y	

- Two (2) 12" rubber covered grab handles shall be provided, one on the driver's side and officer's side front A-pillar, above the door hinge, to assist in entry to the cab.
- Two (2) 12" rubber covered grab handles shall be provided, one on each rear crew door hinged-pillar, on the hinged side of the door, to assist in entry to the cab.
- Two (2) handrails shall be provided on the cab face, one above each warning light combination.

Y | N

VEHICLE DATA RECORDER

Y

Fire Research series SBA200-A00 seat monitor display and vehicle data recorder kit shall be installed. The kit shall include a seat monitor display module, a vehicle data recorder, and cables. The seat monitor display shall be programmable for up to thirteen (13) seats and have a seatbelt icon for each. A message display, push buttons for navigating through programs, and vehicle system warning indicators shall be located on the front of the seat monitor display. The data recorder case shall be waterproof. It shall have inputs for monitored information from the vehicle J1939 CAN bus, independent sensors, seatbelt and seat occupied switches, outputs for audible alarms, and two-way FRC datalink connectors.
The vehicle data recorder shall record the following data once per second and store it in a 48 hour loop:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch
- Time
- Date
- The vehicle data recorder shall record the following data once per minute and have memory to store it for 100 engine hours:
- Maximum Vehicle Speed
- Maximum Acceleration
- Maximum Deceleration
- Maximum Engine Speed
- Maximum Engine Throttle Position

- ABS Event
- Seat Occupied with Seat Belt Unbuckled
- Master Optical Warning Device Switch
- Time
- Date

Y

The oldest data shall be erased first when memory capacity is reached. All data shall be password protected and uploadable from the vehicle data recorder to a computer.

UTILITY COMPARTMENT

The officer's seat shall be held at NFPA regulated height by a 3CR12 stainless steel frame which creates an enclosed compartment. The compartment measures approximately 18" wide x 11" high x 18" deep, front to back at the top and 10" deep front to back at the bottom. Access to this compartment shall be through a front drop-down door, measuring approximately 8.5" high and 14.5" wide.

Y

EMS STORAGE COMPARTMENTS

Two (2) storage compartments shall be provided in the cab. The compartment(s) shall be rear facing and in the outboard position. The compartments openings shall be covered with a webbing cargo net with metal buckles to secure the contents. The compartment(s) shall be constructed of 1/8" smooth aluminum. The compartment exterior(s) shall have a LINE-X finish that shall match the lower cab dash/engine tunnel. The door interior finish shall match the compartment interior finish. Final dimensions shall be determined at the pre-construction conference.

Y

CAB INTERIOR LIGHTING

Auxiliary lights shall be provided in the cab and consist of:
Two (2) Whelen, Model 60CREGCS, red/clear dome light, one (1) located above the driver seat and one (1) located above the officer seat, controlled as follows:

- Clear forward light controlled by the door switch and the lens switch.
- Red rearward light controlled by the lens switch.

Y

CREW CAB INTERIOR LIGHTING

Auxiliary lights shall be provided in the crew cab and consist of:
Two (2) Whelen Model 60CREGCS, red/clear dome lights located above each outboard seat, controlled by the following:

Y

- Clear lights controlled by the door switch and the lens switch.
- Red lights controlled by the lens switch.
- A courtesy light at each door opening, controlled by automatic door switches

Y

STEP LIGHTS

There shall be four (4) LED, step lights provided. The lights shall be installed at each cab and crew cab door, one (1) per step, in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep. These lights shall be installed in such a way to provide a well-lit step while being in a protected position from damage. The lights shall be activated when the adjacent door is opened.

Y

CLIMATE CONTROL SYSTEM

A front cab heater / defroster / air conditioning unit shall be provided. The HVAC unit shall distribute filtered, heated or cooled, fresh and / or recirculated, air through ducting of the cab front dash panels.
Heating capacity shall be rated at 46,000 BTU minimum.
Cooling capacity shall be rated at 33,000 BTU minimum.
The HVAC unit shall be located in the cab RH firewall and have a variable speed 625 CFM blower assembly. The HVAC unit shall be designed for serviceability and be located behind a removable panel. Access to air intake filter, heater core, evaporator core, and fan assembly shall be provided without removing the HVAC housing from the installed location.
Intake air shall be filtered by a commercially available filter and can be mixed between fresh and recirculated for vent / defrost and heat / cool selections.
Output air can be distributed between the four (4) defroster vent located at the base of the windshield, four (4) rear facing dash vents, and two (2) lower rear facing vents.
Defrost function selection can provide heated or cooled output air, fresh or recirculated intake air, and utilizes the AC system for drying air to the windshield. Output air will be directed through six (6) vents. Four (4) fixed flow vents located at the base of the windshield positioned and designed to distribute the air up. Two (2) adjustable vents located, one (1) at the LH edge of the dash directed at the LH driver's door glass and one (1) at the RH edge of the RH passenger's door glass.
Vent function selection can provide heated or cooled output air, fresh or recirculated intake air. Output air shall be directed rearward through four (4) adjustable vents. Two (2) adjustable vents shall be located in the center dash panel with positioning optimized for LH driver and RH passenger air flow direction to the upper torso. Two (2) adjustable vents shall be located, one (1) each forward seating position, in the upper outboard area of each forward seating kick panel, below the dash.

Y

2022 Engine Specifications	Yes	No
The front HVAC unit shall utilize a dedicated condenser located on the forward cab roof. The condenser shall be a stacked type, low profile and feature two fans. All connections, hose and harness, shall be through weatherproof bulkheads. The condenser assembly shall include a white powder coated cover over the stacked condenser coils and a white painted protective cover over the Freon hoses, dryer, valves, switches and / or solenoids above the cab roof and connected to the condenser body. Condenser and cover mounting shall be made without perforating the cab roof skin for maximum resistance to water intrusion to the cab interior. A crew cab heater shall be provided. The heater unit shall provide filtered, engine coolant heated, air to the crew cab area through a ducted enclosure. Crew heating capacity shall be rated at 35,000 BTU minimum and the combined heating capacity of the cab HVAC units shall be 81,000 BTU minimum. The heater unit shall have a variable speed 430 CFM blower assembly. The heater unit shall be designed for serviceability and be located against the rear crew cab wall on the inboard officer side forward facing position in a vented and ducted enclosure approximately 16" deep x 14.5" high x 20" wide. Access to air intake filter, heater core, and fan assembly shall be provided. If the heater unit is centered on the back wall, an additional cover shall be provided to cover the hoses on the floor. This cover finish shall match the crew heater assembly.	Y	
Crew heater function shall feature two (2) controls with backlighting. One (1) rotary fan control switch with four positions (OFF, LOW, MEDIUM, and HIGH) and one (1) rotary temperature control coupled to an electronic water valve. The heater control shall be located near the ceiling above the rear engine access door. The crew cab heater inlet flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted on a plate utilized specifically for auxiliary engine coolant flow control. The mounting plate and valve location shall be in the forward, RH side of the chassis engine area. Valve to be 1/4 turn style with label for ease of identification.	Y	
GENERAL WIRING AND WIRE HARNESS CONSTRUCTION Unless otherwise specified by the component supplier, all insulated wire and cable shall conform to SAE J1127 Low Voltage Battery Cable type SGX or STX, or SAE J1128 Low Voltage Primary Cable type SXL, GXL, or TXL. Circuit feeder wires shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures. Electrical Wiring - 12V General	Y	

2022 Engine Specifications	Yes	No
The apparatus shall be equipped with a heavy-duty 12-volt electrical system. All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All electrical wiring and components installed in the apparatus shall be suitable for use in severe duty emergency vehicle applications. Circuit Identification All wiring shall be uniquely identified by a circuit number and color coding. The identification shall be referenced on a wiring diagram. Wires less than 8 AWG shall be permanently identified at least every 2.0 inches (50.8 mm) by a circuit and function code. Cables equal to or larger than 8 AWG and wires included in jacketed cables shall be permanently identified by circuit number at all terminations. Wiring Connections All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. Secondary locks shall be utilized on all connectors that are secondary lock capable. Exterior exposed wire connectors shall be environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Seal plugs shall be installed in all unused sealed connector cavities. All ungrounded electrical terminals shall have covers or be in enclosures to protect against corrosion, excessive heat, excessive vibration, physical damage, liquid contaminants, dust, and other environmental factors. Wiring splices shall be crimp-type, molded, or sonic weld type. Adhesive lined heat shrink tubing shall be used to seal and insulate splice joints. Wire and Cable Routing Wiring routed through holes in sheet metal or castings shall have edges protected by an appropriately sized grommet. Wiring shall be routed to avoid metal edges, screws, trim fasteners and abrasive surfaces. When such routings are not possible, protective devices (shields, caps, etc.) shall be used to protect the wires. When wires must cross a metal edge the edge shall be covered with a protective shield. Wiring shall be routed to provide at least 3 inches (76.2 mm) clearance to moving parts, unless positively fastened or protected by a conduit. Wire routings should avoid areas where temperatures exceed 180° F (82.2° C) and a minimum clearance of 6 inches (152.4 mm) shall be maintained from exhaust system components. Where compliance with this requirement is not possible, high temperature insulation and heat shields shall be utilized. When wiring is routed between two members where relative motion can occur the wiring shall be secured to each member, with enough wire slack to allow flexing without damage to the wires. Wiring to all circuit components (switches, relays, etc.) in exposed locations shall provide a drip loop to prevent moisture from being conducted into the device via the wire connection. Routing wires into areas exposed to wheel wash shall be avoided if possible. When such routings cannot be avoided, adequate clipping or protective shields shall protect the wires from stone and ice damage. Wiring shall	Y Y	

	Yes	No
be secured in its intended location with appropriately sized bolt-on clips and nylon wire ties. Electrical components designed to be removed for maintenance shall include a sufficient length of wire to allow the component to be pulled away from the mounting area for inspection and service work. Bulkhead type connectors or sealed fittings shall be used to prevent the entry of liquid contaminants into weather tight enclosures. Spare Wires Wiring harnesses from/to major power and signal distribution areas of the apparatus shall include spare wires for future expansion of the system. Electrical System Components Serviceable components shall be readily accessible. Switches, relays, terminals and connectors shall have a dc rating of 125% of the maximum current for which the circuit is protected. A distributed power and signal system shall be utilized on the apparatus to minimize power supply voltage drops. Power and signal distribution areas in the cab shall be concentrated in five (5) areas. A lower cab power and signal distribution center shall be located in the center forward portion of the cab "dash". It shall be hinged and opened by unlocking two (2) top mounted, double hinged, lift and pull latches. This area shall contain relays and circuit breakers installed in a logical and serviceable fashion. An additional lower cab power and signal distribution center shall be located below the officer's dash behind the kick plate. An upper power and signal distribution area shall be located in the forward portion of the cab ceiling, above the engine tunnel. Components in this area shall be permanently labeled and easily accessible by opening a hinged cover. A power and signal distribution area shall be located in the pump module, if applicable. Components in this area shall be permanently labeled and easily accessible. A power and signal distribution area shall be located on the front of the forward body compartments. Components in these areas shall be permanently labeled and easily accessible. All electrical components or devices installed in an exposed area on the outside of the cab or body shall be mounted in such a manner, or protected by a gasket, caulking or other means, so that moisture shall not accumulate in it. Corrosion Protection Externally exposed, non-plug type, electrical connections shall be given a hand applied or sprayed application of an industrial standard insulation coating with a minimum rating of 2100 volts per mil thickness. Insulation shall protect the connection from water induced electrical corrosion and accidental short circuiting. Should the connection be loosened or removed during the manufacturing process another coating shall be applied after it has been refastened or replaced. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect	Y	

	Yes	No
electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA. Electrical Wiring - 12V INTELEX™ PLUS The apparatus shall be equipped with an INTELEX™ PLUS management system for control of the electrical system devices, where applicable.	Y	
Circuit Protection Circuit protection devices shall be utilized to protect each electrical circuit. All circuit protection devices shall be sized according to 125% of the anticipated load to prevent wire and component damage when subjected to extreme current overload. Solid State Circuit Protection Intelex power distribution modules shall utilize solid state output channels and feature fully protected high-side drivers (+12V) to protect wiring. High-side drivers shall provide overload protection, current limitation, transient protection, and replicate the function of an automatic reset circuit breaker. If output current exceeds the rated amperage, the output shall automatically turn off. After 30 seconds, the module shall attempt to re-energize the load. If the output is still overloaded, it shall remain off until the power is cycled. In the event of a communications loss with the vehicle's control module, all outputs not controlling a moving device, such as a ladder rack, shall remain in their previous state until communication is restored or the power is cycled. Non-Solid State Circuit Protection Circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258 unless operational requirements and/or safety concerns dictate Type-III manual reset type conforming to SAE J1625. Automotive-type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized when required to protect electronic equipment. Power Control Relays and Solenoids Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the anticipated current load. Bussmann mVEC Relays and Circuit Protection Manufactured as a hardened and weather tight module, the Mvec is rated at 200 Amps. The mVEC is configured to provide various OEM circuit protection and switching functions, using industry standard fuses, relays and breakers, with the status and control of each circuit accessible through J1939 CAN open messages. Each mVEC is rated at 200 Amps, with individual outputs rated up to 30 Amps. Waterproof to high pressure spraying (IP66 equivalent). The mVEC is designed and manufactured with robust features such as heavy-duty housing, silicon and Gortex gaskets, and protective conformal coated electronics, to operate in demanding vehicle environments such as those found in fire apparatus.	Y	

	Yes	No
LOAD MANAGEMENT SYSTEM The apparatus shall be equipped with an automated load management system. The load management system shall monitor battery voltage and activate the engine high idle system (provided NFPA interlocks have been established) before disabling any electrical loads. If engine high idle is not available or activation does not result in sufficient battery system voltage, individual electrical loads shall be automatically and sequentially deactivated until voltage returns to an acceptable level. Loads shall be sequentially reactivated to avoid a sudden large voltage demand on the system. Electrical loads defined in NFPA 1901 as "minimum continuous" shall not be subject to automatic load management. Load prioritization shall be independently field programmable by authorized users. If the load management system becomes active, the "LOAD MANAGE" indicator shall illuminate on the "Warnings" page of the INTELEX™ PLUS cab mounted display.	Y	
MULTIPLEX DISPLAY A 5" color display capable of displaying graphical images as well as text messages shall be located on the cab dash. The main display page shall include the date, time and ambient air temperature in Fahrenheit. Additional information pages shall be provided for the warning indications, not stowed indications, and open doors. The display shall be dimmable with a Rheostat control on the dash and shall have an override button on the control to dim to ten (10) percent.	Y	
CAB INSTRUMENTATION A non-glare instrument panel, custom designed to accommodate the appropriate functions, shall be provided. Illumination shall be provided for controls, switches, instruction plates, gauges, and instruments necessary for the operation of the apparatus. The cab dash shall be forward slanted, and constructed of aluminum. Rocker switches that have integral lights shall be as follows when applicable: red indicator lights shall be provided for warning light and engine/mechanical functions, green indicator lights shall be provided for scene and auxiliary lighting and general functions; selection shall be at the manufacturer's discretion. A system shall be provided that interacts with the engine electronics and eliminates redundant senders and switches. The electronic engine gauges shall receive information on the SAE J1939 data link to improve reliability and gauge accuracy. Connectors shall be utilized for ease of service. The dial face shall be black with white lettering. The primary letters shall be in Imperial with the secondary, smaller letters in metric. The dial shall have international non-language symbols for the gauge function (except speedometer). Gauges shall have illumination with a monochrome LCD display located on the speedometer gauge. They shall	Y	

	Yes	No
also have a 250 degree dial sweep for greater definition of scale. SAE J1939 Faults and Warnings shall be displayed on the LED display.		
Driver's Instrumentation		
The following individually mounted gauges shall be provided: (all-inclusive gauge clusters not allowed, no exceptions)		
Main Gauges		
3" Speedometer		
Speedometer Mode Switch	Y	
Speedometer Up Switch		
Speedometer Down Switch		
3" Tachometer		
Satellite Gauges		
2" Fuel Level		
2" Voltmeter		
2" Coolant Temperature	Y	
2: Engine Oil Pressure		
2" Transmission Oil Temp		
2" Front Air Pressure		
2" Rear Air Pressure		N
2" DEF Level		N
2" Wet Air Tank Gauge		
Driver's Indicator Light Module		
The following indicators shall be mounted in a removable modular panel in front of the steering column. The indicators shall be identified with universal ISO 2575 symbols where applicable and visible to the driver while seated. All applicable indicators in the modular panel shall automatically illuminate for 1 second upon activation of the ignition switch to verify operation:		
• Battery Switch "On" green indicator light		
• Ignition Switch "On" indicator		
• Check Transmission amber indicator light		
• Check Engine amber indicator light		
• Stop Engine (Engine Warning) red indicator light		
• High Exhaust Temperature (HEST) amber indicator light		

	Yes	No

- Diesel Particulate Filter Regeneration (DPF) amber indicator light
- Wait-to-Start amber indicator light
- Malfunction Indicator Light (MIL) amber indicator light
- ABS warning amber indicator light
- ATC/ESC activated amber indicator light
- Spring (Parking) Brake "On" red indicator light
- High Beam “On” blue indicator light
- Low air pressure red indicator light
- Left Turn signal green indicator light
- Right Turn signal green indicator light
- General Warning red indicator light
- DEF Level Indicator Light
- Low Coolant Indicator Light

CONTROL SWITCHES

The following rocker style control switches shall be identified and accessible to the driver while seated. Switches shall include integral indicator lights (where applicable) to advise that the switch has been energized and identification labels shall be illuminated for night driving.

- Ignition switch with green indicator light
- Engine Start switch
- Headlight / Tail-Marker-ID light switch
- Instrument Panel Dimmer control rheostat — Y

The following controls shall be stalk mounted on the steering column and identified and visible to the driver while seated:

- Turn Signal Control and 4-Way Hazard Warning switch
- High-beam headlight switch
- Windshield wiper control switch
- Windshield washer control switch

The following controls shall be identified and accessible to the driver while seated:

- Parking (Spring) Brake Control
- High Idle control switch

An overhead switch panel shall be located in the "overhead" position above the windshield on the driver's side shall have the following switches

- Siren brake,
- A.T.C,

- Rear locking differential and
- Tire chains
- Telma Brake Control
- White light disable

The following controls shall be identified and accessible to both the driver and officer while seated. Controls shall be identified and illuminated for night driving.

- HVAC control panel
- Other controls (as defined elsewhere in this specification)

EMERGENCY & WORK LIGHT SWITCH PANEL - DRIVER

All emergency light and work area lighting control switches shall be mounted in a removable panel located in the overhead position on the driver's side of the cab. The light switches shall be maintained rocker type with an internal indicator light (where applicable) to show when the switch is energized. All switches shall be properly identified by an illuminated label for night driving. A master warning light switch shall be provided for emergency lighting. Work lights are defined as ground, step, rear pick up, and hose bed or dunnage area. — Y

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.

An override switch to silence an audible alarm in case of malfunction shall be provided. — Y | N

A "Do Not Move Apparatus" red flashing indicator shall be located in the driver's compartment to indicate that any passenger door, compartment door, or ladder rack is not in the closed or stowed position. The light shall be activated only when the parking brake is released. — Y

INDICATOR LAMP AND ALARM PROVE-OUT

A system shall be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms shall perform prove-out when the ignition switch is held in the up position for three (3) to five (5) seconds to ensure proper performance. — Y | N

	Yes	No
SECOND SWITCH PANEL There shall be a switch panel located in the officer console area of the cab. Switches shall be maintained rocker type with an indicator light of which is an integral part of the switch. The switches in this panel will control the front cab brow light, and the side mounted cab floodlights.	Y	
OFFICER SPEEDOMETER A digital display speedometer shall be provided on the officer side overhead position.	Y	
POWERPOINTS Six (6)12 volt DC / USB utility plugs shall be installed in the cab interior. Two (2) 12 volt DC / USB utility plugs shall be installed in a designated body compartment. The location of the 12 volt DC / USB utility plugs shall be determined at the pre-construction conference.	Y	
RADIO ANTENNA MOUNT The apparatus will require four (4) communications antennas mounted on the roof of the apparatus.		
The antenna mounting base shall be NMO type mounts designed for use with the thickness of the material used for the roof of the apparatus (Model MATM). The antenna mounts shall be provided with twenty-five (25) feet of coaxial cable installed to locations in the apparatus determined by the Radio Communications Section of the Lexington Division of Fire and Emergency Services. The coaxial cable shall be RG58/U with 95% braided shield minimum. The coaxial cable shall have a solid copper center conductor with a Polyethylene or Teflon dielectric.	Y	
The location of the antennas on the roof of the apparatus shall be determined in consultation with the Radio Communications Section of the Lexington Division of Fire and Emergency Services (Radio Communications Section). The manufacturer shall provide the Radio Communications Section a detailed diagram on the apparatus cab area including the layout of the roof area, the interior consoles, seats and interior compartments. The diagram of the roof shall include the location of the structural members, light fixtures, and interior headliners. A means of access shall be provided to the inside location of each antenna mounting location selected by the radio communications personnel. Headliner removal shall not be required to service the underside of antenna mounts. All factory installed antenna mounts shall have an antenna or an antenna mount rain cap installed to protect the antenna mount from damage.		N N N

	Yes	No
RADIO EQUIPMENT POWER A minimum 6 (six), constantly hot, and 6(six) ignition switched fuse panel, and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference. Radio noise suppression by using a filter on power supply.		N
ELECTRICAL POWER CONTROL SYSTEM A compartment shall be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment shall contain circuit protection devices and power control devices. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray. Serviceable components shall be readily accessible. Circuit protection devices, which conform to SAE standard, shall be utilized to protect each circuit. All circuit protection devices shall be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. PTO power circuits shall be protected by Type III manual reset non-cycling circuit breakers conforming to SAE J553 or J258 which remain open until manually reset. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized to protect electronic equipment. Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected. Visual status indicators shall be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical shall be used.	Y	N
EMI/RFI PROTECTION The electrical system proposed shall include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source. The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.	Y	N

	Yes	No
EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. The electrical system shall be designed for full compatibility with low-level control signals and high powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimizing the potential for conducting and radiated EMI-RFI susceptibility.		
BATTERY SYSTEM		
Six (6) 12V Group 31 950 CCA batteries shall be installed three each side of the cab under the rear entrance way. Heavy-duty battery cables shall be provided to maximize power available to the electrical system. A pair of jumper cable studs with color coded covers shall be provided under the driver's side battery storage area. Battery and electrical component storage areas shall be constructed of stainless steel with structural steel tubes at the corner mounting points and shall be located one (1) each side mounted on the vehicle frame. They shall be well ventilated and enclosed to protect against road splash and debris. Suitable provisions shall be provided for drainage.	Y	
The batteries shall be held firmly in place by providing a full frame type top clamp which encloses the battery set on all four (4) upper corner sides. The one piece clamp shall be fabricated of 3/4" angles and be held in place by a minimum of two (2) "J" shaped clamping bolts retained within the battery box to prevent retrieval from underside the apparatus. Battery inspection shall be provided through latched drop down doors in the lower step area of the crew cab. Battery replacement shall be possible without tilting the cab (No Exceptions). The interior of the battery box where the batteries are installed shall be painted gloss black. The batteries shall be installed on a non-corrosive Turtle Tile mat. Batteries shall be contained in a box made of stainless steel.	Y	
BATTERY DISCONNECT SWITCH		
A master load disconnect switch shall be provided between the battery positive buss bar and the remainder of the switched battery electrical loads on the apparatus. A green "battery on" pilot light that is visible from the driver's position shall be provided.	Y	
One (1) single battery system switch mounted near the driver's side front entrance in a location so it may be turned off by a person standing on the ground outside the vehicle. It shall have the capacity to handle 350 amps of continuous power.		
An additional master disconnect switch shall be provided between the batteries and the battery positive buss bar to facilitate ease of maintenance. This disconnect shall be located on the officer's side near the batteries and shall be accessible when the cab is tilted.		N

	Yes	No

BATTERY CABLE INSTALLATION

Battery cables and battery cable harnessing shall be installed utilizing the following guidelines:

- All battery cables and battery harnesses shall have a permanent label attached for easy identification of the harness part number and fabrication date.
- Splices shall not be allowed on battery cables or battery cable harnesses.
- For ease of identification and simplified use, battery cables shall be color coded. All positive battery cables shall be red in color or wrapped in red loom the entire length of the cable. All negative battery cables shall be black in color. For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus shall be coated to prevent corrosion. — Y

STARTER SYSTEM

All positive cables from the batteries shall be connected directly to a battery positive buss bar located as close to the batteries as practical. The alternator shall be wired directly to the battery positive buss bar through the ammeter shunt, if one is provided.
The starter solenoid(s) shall be connected directly to the battery positive buss bar. An interlock shall be provided to prevent the operator from engaging the starter when the engine is running. All negative (ground) cables from the batteries shall be connected directly to a battery negative buss bar located as close to the batteries as practical. Appropriately sized ground feeder cables shall be utilized to provide a low impedance ground path to the negative buss bar for all electrical devices on the apparatus. The battery negative buss bar shall be connected to the chassis frame. The cab, pump enclosure, and body structure shall be electrically bonded to the vehicle frame with braided copper grounding straps. — Y

BATTERY CHARGER

A Kussmaul Auto charge 1200, Model 091-53-12-Remote battery charger shall be provided. A bar graph display indicating the state of the charge shall be provided. The charger shall have a maximum output of 40 amps and a fully automatic regulation. The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger. Battery charger shall be located in the cab, behind the driver's seat. The battery charger indicator shall be located behind the driver's door on the outside of the cab on a stainless steel mounting plate. — Y | N

	Yes	No
HUBBELL STYLE RECEPTACLE A non-ejecting Hubbell style receptacle shoreline inlet. Cover to be painted job color red. There is to be a relay to inhibit the starter from engaging unless the shoreline is disconnected from the inlet. There shall also be a mechanics switch in dash with a missile switch cover to override this relay should a failure occur. Shoreline inlet to be located on driver's side of cab as directed on a stainless steel mounting plate.	Y	N
AMP DRAW REPORT The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system. The manufacturer of the apparatus shall provide the following: • Documentation of the electrical system performance tests. • A written load analysis, which shall include the following: o The nameplate rating of the alternator. o The alternator rating under the conditions specified per: o Applicable NFPA 1901 or 1906 (Current Edition). o The minimum continuous load of each component that is specified per: o Applicable NFPA 1901 or 1906 (Current Edition). o Additional loads that, when added to the minimum continuous load, determine the total connected load. o Each individual intermittent load. o All of the above-listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).	Y	
ELECTRICAL WIRING DIAGRAMS Two (2) hard copies and one (1) electronic format electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.	Y	
BODY The body shall be designed and built to acceptable industry standards and shall be of sufficient construction and integrity to prevent cracking at welds, warping, metal fatigue and stress under rough road conditions and extreme temperatures encountered in our area. The body shall be designed and constructed of stainless steel to provide an expected service life of at least 25 years. No exceptions will be made.	Y	

2022 Engine Specifications	Yes	No
Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging shall be performed with special attention given to fatigue, life and structural integrity of the cab, body, and substructure. The body shall be tested while loaded to its greatest in-service weight. The criteria used during the testing procedure shall include: • The raising of opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb. • Making a 90-degree turn, while driving at 20 mph to simulate aggressive driving conditions • Driving the vehicle at 35 mph on a "washboard" road • Driving the vehicle at 55 mph on a smooth road • Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement • Evidence of actual testing techniques shall be made available upon request. The body and compartments shall be constructed of heavy duty 3CR12 stainless steel. The body shall be welded on external or hidden surfaces wherever possible to insure a clean compartment interior look. The compartments shall be a "sweep out" design with the floor higher than the door sill. The compartment floors shall be a minimum of 2.5 mm 3CR12 stainless steel. All compartment seams shall be caulked with gray adhesive/sealant. Each compartment shall be rated for 500 lbs. of storage. False bulkhead panels shall be provided on the inside of the forward and rearward wall of the side compartment panel to cover and protect all electrical wiring and components. This also provides a clean interior for equipment mounting. These panels shall be removable. Removable service panels shall be placed within each of the false bulkhead panels. Door frames on compartments with hinged doors shall be fabricated by flanging the door opening edges inward 1.88" and bending out again .75" to form an angle. The hose body side panels and partitions shall be raised in 5" increments to provide adequate storage for the required and specified hose load. A bright aluminum tread plate cover shall be installed over the side compartments. The cover shall not form the compartment top but shall be an overlay. The forward and rearward edges of the cover shall be folded down 1.5" to cap the forward and rearward ends of the side compartment panel. The outside edge of the cover shall be folded down 1.5" to cap the outside of the side compartment panel and shall have a 45 degree outward bend to provide drip protection over any compartment doors which are immediately below the cover. Extruded aluminum drip molding with a bright anodized finish shall provide drip protection for any compartment doors that are not directly below an aluminum tread plate cover. The forward face of the side compartments and the face of the front cross panel above the operator stand shall be covered with a bright aluminum tread plate overlay. All body components covered with aluminum tread plate overlays shall be coated with an anti-corrosion compound	Y	N

	Yes	No
prior to installation. All tread plate shall be secured with threaded fasteners. Fender compartments shall be integral with the body side compartmentation. There shall be no sharp objects protruding into the wheel well area that could cause injury while cleaning or doing other maintenance in this area. The front portion of the right and left hand side compartments shall mount to a front cross panel. The panel shall be constructed of stainless steel tubing and heavy duty stainless steel sheet metal. The front cross panel assembly shall rest on two (2) heavy duty rubber isolators. These isolators shall be bolted to brackets mounted to the chassis frame, as close to the center line of the chassis frame as possible. These center mounted isolators shall provide a pivot point which shall allow chassis movement without introducing stresses into the body. The rear portion of each side compartment shall bolt directly to the rear step support assembly, which is bolted directly to the chassis frame. The rear steel step/body support assembly shall be constructed of formed .25" and .375" plate, 2" X 3" tubes, 2" X 2" angles, and 3" structural channels in a welded assembly. The rear wall shall be reinforced with formed heavy duty panels.	Y	
LEFT SIDE COMPARTMENTS The full height left hand side panel at 146.00" long by 70.00" high shall be made of stainless steel. This panel consists of one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels, and one (1) upper compartment above the rear wheels. The compartment behind the rear wheels has a 25.75" wide x 29.75" high transverse area through the rear tailboard compartment. It also has extended compartmentation in place of standard beavertail. This extended area is half depth. The compartment ahead of the rear wheels shall have a doorframe to doorframe dimension of 28.50" wide x 63.75" high. The clear door opening shall be 25.00" wide x 61.75" high. The usable compartment space of the lower full depth area shall be 28.50" wide x 29.75" high x 25.75" deep and the upper shallow area shall be 28.50" wide x 36.50" high x 11.75" deep. The compartment behind the rear wheels shall have a doorframe to doorframe dimension of 47.50" wide x 63.75" high. The clear door opening shall be 43.50" wide x 61.00" high. The usable compartment space of the lower full depth area shall be 31.50" wide x 29.75" high x 25.75" deep, the lower half depth area shall be 16.00” wide x 29.75” high x 11.75” deep, and the upper shallow area shall be 47.50" wide x 36.50" high x 11.75" deep. The upper compartment above the rear wheels shall have a doorframe to doorframe dimension of 58.00" wide x 30.50" high. The clear door opening shall be 54.50" wide x 27.00" high. The usable compartment space shall be 63.38" wide x 33.00" high x 11.75" deep.		N

	Yes	No
RIGHT SIDE COMPARTMENTS The full height right hand side panel at 146.00" long by 70.00" high shall be made of stainless steel. This panel consists of one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels, and one (1) upper compartment above the rear wheels. There is a ladder rack pivot area behind the upper compartment. The compartment behind the rear wheels has a 25.75" wide x 29.75" high transverse area through the rear tailboard compartment. It also has extended compartmentation in place of standard beavertail. This extended area is half depth. The compartment ahead of the rear wheels shall have a doorframe to doorframe dimension of 28.50" wide x 63.75" high. The clear door opening shall be 25.00" wide x 61.75" high. The usable compartment space of the lower full depth area shall be 28.50" wide x 29.75" high x 25.75" deep and the upper shallow area shall be 28.50" wide x 36.50" high x 11.75" deep. The compartment behind the rear wheels shall have a doorframe to doorframe dimension of 47.50" wide x 63.75" high. The clear door opening shall be 43.50" wide x 61.00" high. The usable compartment space of the lower full depth area shall be 31.50" wide x 29.75" high x 25.75" deep, the lower half depth area shall be 16.00” wide x 29.75” high x 11.75” deep, and the upper shallow area shall be 47.50" wide x 36.50" high x 11.75" deep. The upper compartment above the rear wheels shall have a doorframe to doorframe dimension of 44.50" wide x 30.50" high. The clear door opening shall be 41.00" wide x 27.00" high. The usable compartment space shall be 50.13" wide x 33.00" high x 11.75" deep.		N
REAR COMPARTMENT One (1) full height, full width stainless steel compartment shall be provided at the rear of the apparatus above the tailboard, 42.00" wide x 32.13" high x 28.00" deep. The compartment shall be transverse as standard with a 25.75" wide x 29.75" high transverse area through each rear side compartment. In the rear wall, there shall be a removable access cover adequately sized to service the fuel tank pickup tube and sending unit without having to remove the tank. The full height compartment shall have a doorframe to doorframe dimension of 38.00" wide x 27.25" high. The clear door opening shall be 36.50" wide x 22.00" high. The usable compartment space for the area under the roll shall be 41.75" wide x 23.00" high x 26.50" deep and the area behind the roll shall be 41.75" wide x 6.25" high x 15.75" deep.	Y	
TAILBOARD WITH GRIP STRUT The tailboard shall be 16.00” deep and located between the rear body compartments. The width of the tailboard between the rear body compartments shall be 70.00”. The tailboard surface shall be 3/16” thick aluminum tread plate with 2-1/2” deep flanges on the front, rear,	Y	

	Yes	No
and side edges. There shall be a Grip Strut insert welded into the tailboard. The insert shall be 31-3/4" wide x 4-1/2" deep. The tailboard shall be installed over a heavy-duty steel framework to prevent it from bending and flexing. The tailboard support shall be constructed of formed ¼" – 3/8" plate, 2.00" x 3.00" tubes, 2.00" x 2.00" angles, 3.00" structural channels, and a welded assembly. It shall be bolted directly to the chassis frame rails, not the body. All mounting bolts used to fasten the tread plate to the tailboard support shall be 5/16" truss-head Philips. Self-tapping sheet metal screws shall not be used to install the aluminum tread plate. There shall be a ½" gap between the tailboard and the body to prevent moisture from being trapped.		
COMPARTMENT DOORS The compartment doors on the apparatus shall be an R.O.M./Robinson aluminum shutter roll-up type door, made in the U.S.A. with a painted finish. A magnetic door ajar and compartment light system designed within the door to conceal moving parts and prevent parts exposure in the compartment shall be provided. Slats shall be double-wall box frame extrusion and must be anodized to eliminate oxidation and rusting. Exterior surface shall be flat and interior surface to be concave to help loose equipment from jamming the door. The latch system shall be a full width, one piece, lift bar, enabling operation with one hand. The manufacturer's standard door frame design may be altered or modified to accommodate the roll-up doors. The roll-up door shall be equipped with a model 1250 cam style lock. The locking mechanism shall consist of 2 locking rods that shall slide into pre-drilled holes in each of the door tracks. All locks shall be keyed alike (to use the same #1250 key).	Y	
ADJUSTABLE SHELVES There shall be six (7) shelves provided. Each shelf shall be infinitely adjustable by means of a threaded fastener which slides in a strut style track. Three (3) shall be full depth, three (3) shall be half depth. One (1) full depth pull-out style drawer shall be provided. The locations shall be determined at the pre-construction meeting.	Y	
RUB RAIL There shall be a rub rail installed on both sides of the lower body compartments. The rub rail assembly shall be constructed of solid polypropylene, Black in color and approximately 2.5" x 1" solid. The rub rail shall be bolted in place with stainless steel bolts, and spaced from the fire body to provide body protection. The rub rail shall serve as protection to the side doors when encountering close objects. The assembly shall have 45 degree angles on the end of	Y	

	Yes	No
assemblies and should be installed in a way that allows easy removal from the apparatus.		
WATER TANK		
Booster tank shall have a capacity of 750 gallons of liquid and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.	Y	
The tank shall be designed to achieve a low hose bed. Tank design shall be a stepped design with the forward section of the tank higher than the section of the tank that is below the hose bed.		
Tank joints and seams shall be nitrogen welded inside and out.		
The tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.		
Baffles shall have vent openings at both the top and bottom to permit movement of air and water between compartments.		
Longitudinal partitions shall be constructed of .38" polypropylene plastic and shall extend from the bottom of the tank through the top cover to allow for positive welding.		
Transverse partitions shall extend from 4.00" off the bottom of the tank to the underside of the top cover.		
All partitions shall interlock and shall be welded to the tank bottom and sides.		
Tank top shall be constructed of .50" polypropylene. It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions.		
Tank top shall be sufficiently supported to keep it rigid during fast filling conditions.		
Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels shall be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.		
A sump that is 8.00" long x 8.00" wide x 6.00" deep shall be provided at the bottom of the water tank.		
The sump shall include a 3” threaded drain plug (located in the bottom of tan sump to provide a drain when cleaning and flushing the tank) and the tank outlet.		
The tank to pump opening in the tank shall be 4.00” in diameter.		
Sufficient cross members shall be provided to properly support the bottom of the tank.		
The tank shall "float" in the cradle to avoid torsional stress caused by chassis frame flexing.		
Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.		
Stops or other provision shall be provided to prevent an empty tank from bouncing excessively while moving the vehicle.		
Mounting system shall be approved by the tank manufacturer.		
Fill tower shall be located at the front left (driver) side of the tank, and constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long.		N
Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.		

	Yes	No
Fill tower not to interfere with hose loads.		
An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.		
A Tanknology Tag shall be installed on the pump panel. The information on the tag shall contain pertinent information regarding the tank.		
Any storage area on top of the tank shall have flooring of removable aluminum grating.		N
A heavy-duty water tank restraint shall be provided.		
HOSE BED		
The hose bed shall be a maximum of 70” from the ground.		
Hose body width shall be a minimum of 68.00" inside.		
Hose bed shall be approximately ninety (90) inches in length, front to back.	Y	
The flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall have spacing between slats for hose ventilation.		
Hose bed shall accommodate 1200' of 5.00" Double Jacketed Triple Duty Hose. The hose is 100ft lengths and will be packed in a single slot, flat loaded 5 tiers wide.		
600' of 1.75" Double Jacketed Hose it shall be packed in two separate slots, each flat loaded two tiers wide.	Y	
500’ of 2.50" Double Jacket Hose shall be packed in a single slot, flat loaded two tiers wide.		
Three (3) adjustable hose bed dividers shall be furnished for separating hose.		
Each divider shall be constructed of brushed aluminum sheet. Hose dividers shall be flat sheet style, with no lip along the edges.		N
Partition shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.		
Divider shall be held in place by tightening bolts, at each end. There shall be no support required across the top of the divider(s) at the rear of the hose bed.		
Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.		
HOSE BED COVER		
The top of the hose bed shall have an NFPA compliant cover installed to secure the hose from Unintentionally, deploying hose from the hose bed.	Y	
A hose bed cover made from 20 oz. per square yard polyester shall be provided and installed over the hose bed. The cover shall be coated with a urethane top coat (vinyl). The rear of the hose bed cover shall be secured, and cover the hose bed opening.		
This cover shall secure the hose from unintentional deployment while the vehicle is underway		

	Yes	No
in normal operations. The vinyl hose bed cover shall be red in color. The hose bed cover shall be fastened down with Twist-Locks on the top and Gator straps with stainless steel hook clips on the rear.		
RUNNING BOARDS		
Running boards shall be fabricated of .125" bright aluminum tread plate.	Y	
Each running board shall be supported by a welded 2.00" square tubing and channel assembly, which shall be bolted to the pump compartment substructure.		N
Running boards shall be 12.75" deep and spaced .50" away from the pump panel.		
A splashguard shall be provided above the running board tread plate.		
A hose tray shall be provided on the right side of the truck below the pump panels. The hose trays shall be constructed of aluminum tread plate and shall have the capacity of 30 ft. of double jacketed 5" hose.		
The edge of the tray openings shall be angled to prevent hose couplings from snagging on the tray opening.		N
Black rubber grating shall be provided at the bottom of the trays. Drain holes are also to be provided in the bottom of the trays.	Y	
A black polypropylene strap with a seat belt paddle latch buckle shall be provided for the running board hose well. It shall be permanently attached on the inboard and outboard side of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops.	Y	
TOW BAR		
A tow bar shall be installed at the rear of the truck.		
Tow bar assembly shall be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 pounds, or a 20,000-pound straight horizontal pull in line with the centerline of the vehicle.		N
Towbar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.		
HANDRAILS - BODY		
The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface. Chrome plated end stanchions shall support the handrail.	Y	
Plastic gaskets shall be used between end stanchions and any painted surfaces.		
Drain holes shall be provided in the bottom of all vertically mounted handrails.		
Four (4) handrails shall be provided, two above each side pump panel.		

2022 Engine Specifications	Yes	No
One (1) vertical handrail shall be provided on the driver's side body, on the front bulkhead door frame.		N
One (1) full-width horizontal handrail shall be provided below the hose bed at the rear of the apparatus.	Y	
Two (2) vertical mounted handrails shall be provided for the rear of the apparatus.	Y	
Location of handrails shall be finalized at the pre-construction conference.		
ADDITIONAL STEPS		
Seven (7) additional folding Eberhard steps shall be provided. Steps shall be located at the pre-construction conference.	Y	N
EXTINGUISHER STORAGE		
One (1) extinguisher compartment shall be provided located on the passenger's side behind the rear wheels.		
One (1) extinguisher compartment shall be located on the passenger's side in front of the rear wheels.	Y	
The compartments shall be of an adequate depth to accommodate different size extinguishers.		
Flooring shall be rubber lined and have a drain hole. A painted door with a chrome-plated latch shall be provided. A dielectric barrier shall be provided between the door hinges, hinge fasteners, and the body sheet metal. Purchaser desires the largest compartment possible in this location.		
AIR CYLINDER STORAGE		
Storage for a minimum of four air cylinders shall be provided.		
The air cylinder compartments shall be located on driver's side,	Y	
One (1) located in front of the rear wheels.		
One (1) located behind the rear wheels.		
Each air cylinder compartment shall be of adequate size to accommodate at least two (2) 45 minute air cylinders.		
Flooring shall be rubber lined and furnished with a drain hole.		
A painted door with a chrome-plated latch shall be provided. A dielectric barrier shall be provided between the door hinge, hinge fasteners, and the body sheet metal.		
Purchaser desires the largest compartment possible in this location.		

	Yes	No
AIR CYLINDER STORAGE INSERT A minimum of two (2) inserts shall be provided for the air cylinder storage compartments. The inserts shall accommodate 45 minute @ 4,500 psi SCBA cylinders. Purchaser desires to carry a maximum number of cylinders in each compartment, the appropriate number of inserts to be proposed by the bidder. The exact configuration of Extinguisher and Air Cylinder storage shall be determined at the pre-construction conference.	Y	
LADDER BRACKETS The ground ladders shall be mounted above the side compartments on a swing down ladder rack. This rack is to be constructed of 6061 aluminum plate and 6063 aluminum tubing. The rack is to be mounted to the body at three pivot locations; front, rear and center. All pivot locations shall be bronzed bushed and all pins shall be 1" diameter minimum. The center arm shall be constructed of two 3/4" thick aluminum plates spaced no less than 4.75" apart. The side pivot arms shall be constructed of solid 3/4" x 2-1/2" aluminum bar, gusseted at the top where joining the tube structure. The tube structure under the ladder shall be no less than 2" x 2" x 1/8" wall and shall be diagonally braced. There shall be a minimum of 12" of clearance beneath the tube structure to the top of the body ATP catwalk. One (1) double acting hydraulic cylinder shall be furnished at the center pivot location to move the rack up and down. The cylinder shall have a 2 1/2" diameter bore size and a 1-1/4" diameter piston rod size. The piston rod shall be threaded and provided with an adjustable clevis. Mounted directly to the cylinder shall be a flow control valve to prevent the rack from dropping suddenly in case of hydraulic line burst or leakage. A tie rod type cylinder with O-ring seals will not be acceptable. A door shall be provided to cover the hydraulic cylinder and will close automatically when the rack is in the up position. The hydraulic cylinder shall be operated by an independent hydraulic pump coupled to a 12 VDC motor. The pump shall be capable of 150 cubic inches of oil a minute at 1000 psi. The pump reservoir shall be made of high density polyethylene and hold 46 cubic inches of oil. A guarded toggle switch shall control the hydraulic pump through a 12 volt relay. This switch shall be located on the pump panel to allow the operator full view of the rack when lowering. One over center stainless steel cam lock shall secure the ladder rack at the front when in the up position. This cam lock shall prevent the ladder rack from moving both side to side and from moving fore and aft during road travel. The cam lock shall be installed at the forward position within easy reach of the operator. An indicator light shall be installed in the cab to notify the driver when the cam lock is unlocked from the stored position. There shall be interlocks to prevent the rack from being lowered when the cam is closed. The ladder rack shall be capable of being lowered within 12 seconds. When lowered, the bottom of the rack shall not be more than 54 inches	Y	

	Yes	No
above the ground. A warning light, activated when parking brake is disengaged, shall be provided in the cab to indicate when rack is in motion or down. Reflective striping shall be provided on the outward side of the rack.	Y	
Hydraulic Ladder Rack Front & Rear Flashing Lights Whelen model OSR00FCR red LED lights with clear lens and chrome flange shall be provided on the front and rear of the rack. They shall be activated when the rack is in use.		
Hydraulic Ladder Rack Finish - Etch finish The hydraulic ladder rack shall have an Etch finish. There shall be a 24', two (2) sections, Duo-Safety Series 900-A extension ladder provided. There shall be a 14’ Duo-Safety Series 775-A roof ladder provided.		
One (1) 10' aluminum folding ladder, Series 585-A Duo-Safety folding ladder shall be installed behind the ladders. A method shall be provided to remove this ladder from the rear. Four (4) aluminum tubes shall be installed behind the ladders to allow storage of pike poles. The pike poles shall be removable from the rear of the truck. The ladder rack shall permit the carrying of the 24' Extension ladder in the outboard position. Final layout of the ladder rack will be discussed at the pre-construction conference.	Y	
PUMP		
The pump shall be a Waterous CSU, 1500 gpm single (1) stage midship mounted centrifugal type.	Y	
The pump shall be the class "A" type.		
The pump shall deliver the percentage of rated discharge at pressures indicated below: • 100% of rated capacity at 150 psi net pump pressure. • 70% of rated capacity at 200 psi net pump pressure. • 50% of rated capacity at 250 psi net pump pressure.		
Pump body shall be close-grained gray iron, bronze fitted, and horizontally split into two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).		
The pump shall be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.		
Pump case halves shall be bolted together on a single horizontal face to minimize the chance of leakage and facilitate ease of reassembly. No end flanges shall be used.		
Discharge manifold of the pump shall be cast as an integral part of the pump body assembly and shall provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.		
The three (3) 3.50" openings shall be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.	Y	

2022 Engine Specifications	Yes	No
Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported at each end by sealed, anti-friction ball bearings for rigid, precise support. The impeller shall have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply. Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings shall be used. The pump shall be equipped with a self-adjusting, maintenance-free, mechanical shaft seal. The mechanical seal shall consist of a flat, highly polished; spring fed carbon ring that rotates with the impeller shaft. The carbon ring shall press against a highly polished stainless steel stationary ring that is sealed within the pump body. In addition, a throttling ring shall be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance shall not deteriorate, nor shall the pump lose prime, while drafting if the seal fails during pump operation. Wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.	Y	
PUMP TRANSMISSION Pump transmission shall be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump shall be through a high strength Morse HY-VO silent drive chain. Drive shafts shall be a minimum of 2.35" diameter hardened and ground alloy steel. All shafts shall be ball bearing supported. The case shall be designed to eliminate the need for water cooling.	Y	
AIR PUMP SHIFT Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1) green light shall indicate the pump shift has been completed and be labeled "pump engaged." The second green light shall indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light shall be labeled "OK to pump." Another green indicator light shall be installed adjacent to the hand throttle on the pump panel and indicate either the pump is engaged and the road transmission is in pump gear, or the road transmission is in neutral, and the pump is not engaged. This indicator light shall be labeled "Warning: Do not open throttle unless the light is on." The pump shift control in the cab shall be illuminated to meet NFPA requirements.		N

	Yes	No
• A manual backup shift control shall also be located on the driver's side pump panel. The linkages for the manual pump shift shall be solid material. Cable linkage is not acceptable.		N
AUXILIARY COOLING SYSTEM A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger shall be cylindrical type and shall be a separate unit. The heat exchanger shall be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger shall be plumbed to the master drain valve.	Y	
OVERHEAT PROTECTION MANAGER A Waterous Overheat Protection Manager (OPM) shall be installed to act as a safety device by releasing hot water from the discharge area of the pump to the ground. The OPM consists of a valve that opens when the water in the pump reaches 140° F and a warning light that is triggered by a thermal switch when the water in the pump reaches 180° F. The warning light acts as an additional protection device if the temperature inside the pump keeps rising although the valve is open. The OPM valve and switch are both mounted on two 1/2" tapped holes located near the center discharge area of the pump.	Y	
PUMP COMPARTMENT A 48” wide modular operator stand with side mount controls, shall be installed between the cab and the apparatus body. The operator stand shall be independently mounted and furnished with flex joints between the cab and the body to allow for flexure of the chassis frame during road travel. (No exceptions to this requirement). The operator stand substructure shall be fabricated of 304 stainless steel structural shapes and formed 304 stainless steel plate and shall also support the side running boards. It shall be installed on the chassis with a four point isolator arrangement that allows it to flex independently of the chassis frame. A Tech Products rubber isolator shall be used at each mounting point for this purpose. The substructure, including the pump and plumbing shall be removable from the vehicle as one complete unit. The aluminum ceiling of the operator stand shall be fastened with stainless steel machine screws so that it may be removed for access to the pump and piping as required. Officer side panel shall be vertically hinged from the cab side.	Y	

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	Yes	No
Removable 304 stainless steel panels, full height and width, shall be provided on both sides of the operator stand and a stainless steel pump access door shall be provided on each side of the vehicle. Each door shall be hinged along the top and held closed with compression latches or held open with two (2) gas struts. An 8" knurled grab rail shall be provided on the right and left side of the operator stand, next to the hinged access door on the side of the door next to the crosslay. All pump controls and gauges shall be located on the left side of the apparatus on a stainless steel panel with color coded identification plates. The following controls and gauges shall be located on the control panel for convenient operation: • All discharge controls • Electronic engine throttle or governor • Primer control • Tank fill control • Tank to pump control • Master discharge gauge • Master intake gauge • 1/4" NPT Allen head pressure and vacuum test plugs • Auxiliary cooler control • Master pump drain control • Individual pressure gauges • Water level indicator • Air bleeder front intake There shall be two (2) crosslay hose beds provided at the top front of the operator stand. The bottom of each crosslay shall be a maximum of 43" from the running board stepping surface. Each hose bed shall have the capacity to carry a minimum of 200 feet of pre-connected 1.75" double jacketed hose. The interior sides of the hose bed shall be constructed of 304 stainless steel and shall have a DA finish. The interior of the hose beds shall be smooth and free from all sharp projections which might damage hose. The bottom of the crosslay hose beds shall be provided with a removable aluminum pan, with ventilation holes, for the stored hose. The pan shall be provided with a DA finish. A wide open bin area shall be provided aft of the crosslay beds. The outward facing walls shall be vented as necessary for equipment.	Y Y	

2022 Engine Specifications	Yes	No
INTAKE RELIEF VALVE An adjustable Waterous relief valve shall be installed on the suction side of the pump preset at 150 psig. The relief valve shall have a working range of 75 psig to 250 psig. The outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag. Control shall be located on the pump panel.	Y	
PRESSURE CONTROLLER Fire Research PumpBoss series PBA400-A00 pressure governor and monitoring display kit shall be installed. The control module case shall be waterproof.	Y	
PRIMING PUMP The priming system shall be a Trident Emergency Products Auto primer with vacuum gauge compressed air powered, high efficiency; multistage venturi based Air-Prime System, conforming to standards outlined in NFPA pamphlet #1901. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. One (1) priming control shall open the priming valve and start the pump primer.	Y	
PUMP MANUALS One (1) hard copy pump manual from the pump manufacturer and one electronic format shall be furnished. Manuals shall cover pump operation, maintenance, and parts.		N
PLUMBING All inlet and outlet plumbing shall be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. If hose is used, it must have a minimum burst rating of 1,000 psi and be equipped with high-pressure couplings. Small diameter secondary plumbing such as drain lines shall be stainless steel, brass or hose. Where vibration or chassis flexing may damage or loosen piping or where coupling is required for servicing, the piping shall be equipped with Victaulic or rubber couplings. All lines to drain through either a master drain valve or shall be equipped with individual drain valves. All individual drain lines for discharges shall be extended with a hose to drain below the chassis frame. All water carrying gauge lines shall be of flexible polypropylene tubing.	Y	

2022 Engine Specifications

	Yes	No
MAIN PUMP INLETS A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include removable die-cast zinc screens that are designed to provide cathode protection for the pump, thus reducing corrosion in the pump. The main pump inlets shall have National Standard Threads with a long handle chrome cap.	Y	
SHORT SUCTION TUBE The suction tubes on the midship pump shall have "short" suction tubes to allow for the installation of adapters without excessive overhang.	Y	
VALVES All ball valves shall be Akron Brass in-line valves. The Akron valves shall be the 8900 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.		N
INLET (LEFT SIDE) On the left side pump panel shall be one (1) 2.50" auxiliary suction, terminating in 2.50" female NST. The auxiliary suction shall be provided with a strainer, chrome swivel and chrome plated lightweight plug and heavy duty cable. Inlet valve shall be outside of the pump panel and the control located at the inlet valve.	Y	N
INLET BLEEDER VALVE A .75" bleeder valve shall be provided for the side gated inlet. The valve shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handle shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.	Y	
INLET (FRONT) A 4.50" front inlet with die-cast zinc screens shall be provided using 5.00" stainless steel pipe and a 5.00" butterfly valve. Only radiused elbows shall be used in the piping, no mitered joints.	Y	

	Yes	No
Valve shall be an Akron manual 5” Valve controlled from pump panel with an electric controller. Drains are furnished in all the low points of piping and have 3/4" valves with swing handle. The drain in front of the front wheel shall be installed into the side of the piping to maximize approach clearance to sloped grades. A bleeder valve shall be located at the threaded connection. The front suction shall be located on the passenger’s side of the front bumper extension and equipped with a swivel. The front suction shall have a chromed 4 1/2”male NST adapter.	Y	
An intake relief valve, preset at 150 psig, shall be installed on the inlet side of the valve. The relief valve shall have a working range of 75 psig to 250 psig. The outlet shall terminate below the frame rails.	Y	
• There shall be a manual control for the valve at officers pump panel to serve as a backup to the electric controller. Final location of the manual valve controller shall be discussed at the pre-construction meeting.	Y	N
TANK TO PUMP The booster tank shall be connected to the intake side of the pump with 4.00" heavy-duty piping and a quarter turn 3.50"s Akron 8900 with a stainless steel ball valve. The control shall be equipped with a push / pull actuator located on the operator's panel. The tank to pump line shall run straight, without elbows, from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing. A check valve shall be provided in the tank to pump supply line to prevent the possibility of backfilling the water tank. A minimum flow of 750 gpm shall be achieved through the tank to pump piping.		N
TANK REFILL A 3.00" combination tank refill and pump recirculation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel, with a hand wheel.		N
DISCHARGE OUTLET CONTROLS All discharge valves shall be manually operated Trident Tru-Flo Valve positioning indicating hand wheels All discharge valve handles shall be mounted in such a manner as to have the extended portion of the circular handle mounted in the five o’clock positions when fully closed. Actuator rods shall be secured to the hand wheel and valve with locking style nuts.	Y	

2022 Engine Specifications	Yes	No
DISCHARGE CAPS Red Head rocker lug cap with vinyl covered cables shall be furnished for 2 ½" side discharge outlets. No caps are required for rear and front discharges.		N
DISCHARGE OUTLET (LEFT SIDE) There shall be one (1) discharge outlet on the left side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter. This discharge shall be operated with a 2.50" full flow ball valve with a direct lever handle.	Y	
ELBOW, LEFT SIDE OUTLET The 2.50" discharge outlet, located on the left side pump panel, shall be furnished with a 2.50"(F) National Standard hose thread x 2.50"(M) National Standard hose thread, chrome plated, 30 degree elbow.	Y	
DISCHARGE OUTLETS (RIGHT SIDE) There shall be two (2) - 4.50" discharge outlets each with one (1) with 4.00" Akron valves installed on the right side of the apparatus, terminating with a male 4.50" National Standard hose thread adapter. This discharge outlet(s) shall be actuated with a hand wheel control at the pump operator's control panel.	Y	
ELBOWS LDH DISCHARGE OUTLETS (RIGHT SIDE) Two (2) 4.50" discharge elbows shall be furnished, one (1) with 4.5" (F) NST swivel x 4.5" (F) NST swivel and one (1) with 4.5" (F) NST swivel X 4.5" (M) NST Red Head Brass anodized aluminum elbows. One (1) 4.5 to 2.5 reducer with cap shall be provided.	Y	N
DISCHARGE OUTLET (FRONT) There shall be a 2.50" gated discharge outlet plumbed to the top of the bumper beside the tray in the driver's side front bumper extension. The discharge shall have a 90-degree swivel and terminate with 2.50" NST with a 2.5" x 1.5" reducer. Plumbing shall consist of 2.00" piping with a 2.00" full flow ball valve controlled at the pump operator's panel with a hand wheel control. Automatic drains shall be provided at all low points in the plumbing.	Y	N

	Yes	No
DISCHARGE OUTLETS (REAR) There shall be two (2) discharge outlets piped to the rear of the hose bed, one (1) each side, installed 4 inches from the inside of the rear inner bulkhead to center of the pipe, so proper clearance is provided for spanner wrenches or adapters.	Y	
No elbows allowed in rear internal piping from the valve to the rear of the apparatus.		N
The final design shall be approved by LFD at the pre-construction meeting.		
Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the with a hand wheel control from the pump operator's panel, terminating with 2.5” male NST.		
The two (2) 2.50" discharge outlets, located at the rear of the apparatus, shall be furnished with a 2.50" FNST x 2.50" MNST, chrome plated, 30 degree elbows.		
There shall be two (2) adapters equipped with 2.50" FNST x 1.50" MNST threads installed one each on the rear (side) 2.50" outlets elbows.		
A .75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.	Y	
Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.		
DELUGE RISER Elkhart Brass Model 8599 Manual Extender shall be installed. The extender shall provide the capability of raising the water monitor 18”. Shall have 360º rotation capabilities in both extended and stowed position. Shall have a 3” hard-anodized aluminum waterway capable of 1250 gpm flow. For operator safety, the extender shall have a locking mechanism that prevents accidental deployment or collapse of the extender. An integrated sensor shall be provided that allows the installer to connect to cab light or another monitoring system that indicates when the extender is NOT in the stowed position. Standard inlet connection shall be 3” NPT or 3” Victaulic. Outlet connection shall be 3” NPT. Mounting brackets shall be included and shall be e-coated for corrosion resistance.	Y	
CROSSLAY DISCHARGE OUTLETS The front two crosslay hose beds shall be plumbed for pre-connected hose lines.	Y	
The discharges shall be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve with a hand wheel control from the pump operator’s panel.		
Outlets to be equipped with a 1.50" National Standard hose thread 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.		

	Yes	No

CROSSLAY COVER

There shall be a vinyl cover for the crosslay.
A weighted cover shall be provided for the ends of the crosslay hose beds. The covers shall be made of 20 oz. per square yard polyester coated with a urethane top coat (vinyl). The vinyl covers shall be permanently attached to the ATP cover and have stainless steel spring clips and stainless steel hooks on the bottom corners.
This cover combination shall restrain the hose in the crosslay from unintentional deployment while the vehicle is underway in normal operations.

Y

BACKBOARD COMPARTMENT

There shall be a backboard compartment provided. It shall accommodate one (1) standard plastic long spine board. Final location can be discussed at pre-build.

Y N

DISCHARGE COLOR CODING

All discharge outlets shall have color-coded identification tags, with each discharge having its own unique color. Color coding shall include the labeling of the outlet and the drain for each corresponding discharge.
All line pressure gauges shall be mounted in individual chrome plated castings with the identification tag recessed in the casting below the gauge.

Y

DISCHARGE	TAG COLOR
FRONT BUMPER	Purple
FRONT CROSSLAY	Yellow
REAR CROSSLAY	White
#1	Red
LDH # 1	Gray
LDH #2	Teal
DRIVERS REAR	Tan
OFFICER REAR	Green

	Yes	No
All remaining identification tags shall be mounted on the pump panel in chrome plated bezels. Mounting of the castings and identification bezels shall be done with a threaded peg cast on the back side of the bezel or screws.		
PUMP PANEL CONFIGURATION The pump panel configuration shall be neat and orderly. An approval drawing of the final pump panel configuration shall be provided after the pre-construction conference.	Y	
AIR HORN SWITCH An air horn control switch shall be provided at the pump operator's control panel. This switch shall be red and properly labeled and put within easy reach of the operator in the electrical switch panel.	Y	
GAUGES, VACUUM, AND PRESSURE The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel. If the pump vacuum and pressure master gauges are above eye level, they shall be placed in housing with a downward angle for ease of viewing. The pump vacuum and pressure gauges shall be silicone filled and manufactured by Class 1, Inc. The gauges shall be a minimum of 6.00" in diameter and shall have white faces with black lettering, with a pressure range of 30.00"-0-600#. Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.	Y	N
TEST PORT CONNECTIONS Test port connections shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25” standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.	Y	

	Yes	No
PRESSURE GAUGES The individual "line" pressure gauges for the discharges shall be interlube filled and manufactured by Class 1. There shall be four (4). They shall be a minimum of 2.50" in diameter and shall have white faces with black lettering. Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut. Gauges shall have a pressure range of 0-400 psi. The individual pressure gauge shall be installed as close to the outlet control as practical.	Y	
FLOW METERS The builder shall install five (5) Fire Research Cooperation (FRC) flow meters. The flow meters shall include display module, paddlewheel flow sensors and flow sensor housing with mount for applicable plumbing, pressure sensors, and interconnected cables. The gauge used shall be the Insight Ultimate The flow meter shall be installed following FRC installation guidelines, and a flow conditioner will be used if recommended and be mounted using weld mount fittings. The meters shall be provided on front/rear crosslay, left/ right rear pre-connect, and the LDH outlet with the least amount of friction loss. Each meter shall be calibrated utilizing the multiple point calibration. Flow meter system shall be properly calibrated prior to delivery.	Y	
WATER LEVEL GAUGE An electronic water level gauge shall be provided on the operator's panel that registers water level by means of five colored LED lights. The lights shall be durable, ultra-bright five LED design viewable through 180 degrees. The water level indicators shall be as follows: • 100% = Green • 75% = Yellow • 50% = Yellow • 25% = Yellow • Refill = Red The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the water tank is empty.		N

The level measurement shall be based on the sensing of head pressure of the fluid in the tank.
The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components.
The encapsulated design shall provide complete protection from water and environmental elements.
An industrial pressure transducer shall be mounted to the outside of the tank.
The field calibratable display measures head pressure to accurately show the tank level.

LIGHT SHIELD DRIVER SIDE PUMP PANEL

Pump panel illumination shall be provided by two LED lights to illuminate controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it.
Lights shall be installed under a stainless steel shield. Y
A light shall come on above the pump panel light switch when the pump is engaged.
A green pump engaged indicator shall come on at the operator's panel when the pump is shifted into gear from inside the cab.
The remaining lights to be actuated from a maintained switch located on the pump panel.

ADDITIONAL LIGHT SHIELD PASSENGER SIDE PUMP PANEL Y

An LED light shall be provided above passenger's side pump panel.
Lights shall be installed under a stainless steel shield.
These lights shall be operated by the driver side pump panel light switch.

EXTERIOR LIGHTING

Exterior lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards, and National Fire Protection Association requirements in effect at time of proposal. Y

STEP LIGHTS

All mounted steps shall be lit by LED lighting integrated into the steps. Y

	Yes	No
FRONT FMVSS LIGHTING		
Front headlights will be Peterson LED 4''x 6'' sealed headlights Model 702C Low beam and 703C high beam. They will be mounted in a chrome trim housing. The headlight shall be equipped with daytime driving application.		N
The headlight and LED directional lights can be in the same assembly.		
Headlights shall be wired for daytime driving lights function.		
REAR FMVSS LIGHTING		
The rear stop/tail and directional lighting shall consist of the following:	Y	
• Two (2) Whelen, Model M6BTT, red Super LED combination stop/tail lights.		
• Two (2) Whelen, Model M6T, amber Super LED arrow shape turn signal lights.	Y	
• Two (2) Whelen, Model M6BUW, Super LED backup lights shall be provided.		
• One (1) Whelen, Model PSR01FCR, LED Third brake strip will be provided and mounted above the rear compartment doors and centered.	Y	N
These lights shall be installed at the rear of the truck in a polished housing that will hold all 4 lights on each side.	Y	
Four (4) red reflectors shall be provided.		
LICENSE PLATE BRACKET/LIGHTING		
A license plate bracket shall be mounted at the rear in a highly visible location where it does not interfere with other equipment. An LED light shall illuminate the license plate.	Y	
REAR ID/MARKER DOT LIGHTING		
Truck-Lite Model 30080R identification lights located at the rear shall be installed per FMVSS 108 and CMVSS 108 requirements.		N
Two (2) Britax outside clearance lights equipped with rubber arms shall be located on the side of the body behind the rear compartment door.	Y	
Two (2) Britax or equal rubber mounted lights fitted with amber/red LED light assemblies wired to be used as turn signals, and marker light lights shall be mounted	Y	

	Yes	No
on both sides of the cab above front wheel on each side. Final location determined at the pre-construction.		
BACKUP ALARM An ECCO, Model SA917-PM2, solid-state electronic audible backup alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum five (5) DBA above surrounding environmental noise levels.		N
LIGHT, INTERMEDIATE There shall be one (1) pair, of Truck-Lite, Model: 60115Y, amber, LED, turn signal, marker lights furnished, one (1) each side, horizontally in the rear fender panel. A stainless steel trim shall be included with this installation.	Y	N
OPEN DOOR INDICATOR LIGHT One (1) red indicator lights shall be provided and located in clear view of the driver, warning of an open passenger or equipment compartment door. One (1) light shall indicate status of doors on the driver's side of the vehicle, and the other light shall indicate the status of the passenger side and rear compartment doors.	Y	N
COMPARTMENT LIGHTING All compartments shall be equipped with Amdor Stand Alone LED compartment light strips. The strips shall be centered vertically along each side of the door framing. The compartments with these strip lights shall be each equipment compartment including the engineer’s compartments and EMS compartments. The compartment light strips shall not rely on Velcro or other temporary means for mounting. Opening the compartment door shall automatically turn the compartment lighting on. Compartments with netting in place of doors shall have a switch provided to operate the light. The compartment lights shall be blue in color.		N

	Yes	No

GROUND LIGHTS

There shall be an AMDOR LUMA BAR; Model H2O LED light provided for each cab door. Lighting shall be designed to provide illumination on areas under the driver, officer, and crew cab riding area exits, which shall be activated automatically when the exit doors are opened and by the same means as the body perimeter lights. One (1) shall be placed and centered under the front bumper.
The lighting shall be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas which personnel climb in or out of the apparatus or descend from the apparatus to the ground level. Lighting shall also activate with marker light switch.
There shall be a total of four (4) AMDOR, LUMA BAR; Model H2O LED lights provided on the apparatus. Two (2) lights shall be provided under the rear step area, and two (2) lights shall be provided under the pump panel running boards. The lights shall be spaced one (1) each side of apparatus. The perimeter scene lights shall be activated by the parking brake. — N
The lighting shall be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level. Lighting shall also activate with marker light switch.

12 VOLT LIGHTING

- There shall be one (1) 72” LED HIVIZ, FIRE TECH Model FT-B-72 floodlight provided centered on the front visor. Final placement to be determined at pre-construction conference. This light may be load managed when the parking brake is set. Light shall be equipped with integrated marker lights. — Y
- There shall be one Whelen PELCC mounted in a centered position on the exterior cab wall to provide illumination for the cross lay area. — N
- There shall be one Amdor Lumbar H20 light installed in a downward position at the front of the hose bed at the highest possible location. This light shall be controlled by a switch on the pump panel. — N
- There shall be one (2) Firetech Guardian Elite FT-GESM surface mount 12v scene lights. One shall be located on the driver’s side of the crew cab. The second shall be located on the officer’s side of the crew cab. The lights shall be controlled by a switch located between driver and officer and shall come on when the driver side crew doors are opened. These lights may be load managed when the parking brake is set. — Y
- There shall be one (1) Firetech FT-MB-18-TR-F-B trunnion mount scene light mounted on the upper body shelf driver's side. — Y

	Yes	No
• There shall be one (1) Firetech FT-MB-18-TR-F-B trunnion mount scene light mounted on the upper body shelf officer's side. • Final placement of all scene lighting shall be determined at the pre-construction conference.	Y	
DECK LIGHTS Two (2) HIVIZ LED, FIRETECH, Model FT-WL 3500-FT, lights shall be mounted, one (1) each side, at the rear inner bulkhead of the hose bed. Deck lights shall be wired to automatically come on when the transmission is placed in reverse. There shall also be a maintained switch on the rear of the apparatus to control these lights from the ground.	Y	N
SWITCH, BACK-UP LIGHTS A switch shall be provided in the cab to activate the backup lights, rear 12V scene, and deck lights. The switch shall only be active when the parking brake is applied.	Y	
SWITCH AND STEP LIGHTS A switch shall be provided in the cab to permit the step lights to be turned on from the cab. This switch shall also allow the ground perimeter and step lights to be disabled for “blacked out” situations.	Y	
WARNING LIGHTS (CAB ROOF) There shall be a 72.00" Whelen Ultra Freedom Super LED Light Bar, Model: FN72VLED light bar mounted on the cab roof. The light bar shall include the following: • Eight (8) red flashing forward facing LED modules. • Four (4) white flashing forward facing LED modules. • Two (2) red solid burn front corner LED modules. • Two (2) red flashing rear corner LED modules. All the lenses shall be clear. There shall be one (1) switch located in the cab, on the switch panel, shall control this light bar. The white warning lights shall be controlled by a switch in the cab switch panel and disabled when the parking brake is set	Y	N

	Yes	No
WARNING LIGHTS MINI LIGHT BARS There shall be two (2) Whelen Model FNMINI, NFPA Mini Ultra Freedom LED light bars provided. These lights shall be positioned one (1) above the passenger front cab door and one (1) above the driver side front cab door facing to the side. The light bar shall include: • Three (3) Red flashing LED modules. • One (1) white flashing LED module All the lenses shall be clear. There shall be one (1) switch located in the cab, on the switch panel, to control these light bars. The white warning lights shall be controlled by a switch in the cab switch panel and disabled when the parking brake is set.	Y	
WARNING LIGHTS (CAB FACE) Two (2) Whelen Model 6RB*C LED lights shall be installed on the cab face, above the headlights, mounted in a common bezel. The color of these LEDs shall be red Super Linear LED/clear lens. The inner LEDs shall be additional lighting. The color of these lights shall be red Super Linear LED/clear lens. Both sets of lights shall be activated by the same switch in the cab.	Y	
HEADLIGHT FLASHER The high beam headlights shall flash alternately between the left and right side, with a control switch located on the cab instrument panel. The flashing shall automatically cancel when the headlight hi-beam switch is activated or when the parking brake is set.	Y	
SIDE ZONE LOWER LIGHTING Four (4) Whelen Model M6*C, red flashing super linear LED lights with clear lens shall be located at the following positions: • Two (2) lights one (1) located each side above the front wheel. • Two (2) lights one (1) located each side over the rear wheels in the rear fender panels. • Two (2) Whelen Model M9RC, red flashing super linear LED lights with clear lens shall be located one (1) each side on the front bumper extension.	Y	

	Yes	No
REAR ZONE LOWER LIGHTING Two (2) Whelen M 6RC LED shall be located at the rear of the apparatus required to meet or exceed the lower level optical warning and optical power requirements of NFPA. Each light shall be mounted in the 4 light housing.	Y	
WARNING LIGHTS (REAR OF HOSE BED) Two (2) Whelen B63M751 LED warning beacons shall be provided at the rear of the apparatus located one (1) each side. These lights shall be activated by a lighted switch on the instrument panel. The color of the lights shall be clear lenses with rotating red LEDs in the top dome. The bottom will be amber with clear lens. These lights shall be mounted in the highest position possible not to affect the overall height of the truck. All wiring shall be totally enclosed.	Y	
DIRECTIONAL WARNING LIGHT A Whelen LINZ6 Super-LED Dominator Plus series Traffic Advisor shall be provided. The light bar shall be 30.36" long and have eight (8) Super-LED lamps. It shall be recess mounted in the body. The light will be wired to come on with the emergency lighting. The traffic advisor shall be mounted below the hose bed at the rear, centered. The lights shall be controlled by a TADCTL1 controller mounted in the cab. Controller placement to be determined at the pre-construction conference.	Y	
110 VOLT INTERIOR RECEPTACLES The receptacles shall be two (2) NEMA 5-15, 120 volt, 15 amp, three (3) wire duplex household type connected to the shoreline. There shall be one (1) receptacle provided located in a body compartment as determined at pre-construction conference and one (1) receptacle provided located in the cab as determined at the pre-construction conference.		N
PAINT The following processes shall be employed in the finishing of the apparatus: • Manual Surface preparation – All metal surfaces on all custom body and cabs shall be thoroughly cleaned and prepared for paint. Surfaces that shall not be painted include all chrome plated, polished stainless	Y	N

Yes	No

steel and bright aluminum tread plate. As required, weld seams and other areas shall be caulked to prevent water leaks or for appearance reasons. Each imperfection on the exterior metal surface shall be removed or filled and then sanded for a smooth flat appearance.

- Chemical Cleaning and Treatment – All painted surfaces shall be washed with a chemical degreaser, cleaner and surface conditioner to allow for proper adherence of primer coat. Then they shall be washed with a neutralizer product. All products used are approved by paint supplier and applied under strict process control to meet performance requirements on corrosion prevention and chip resistance.
- Primer/ Surface Coating for Top Coat application – a minimum of 2 coats of Epoxy based primer shall be applied to surfaces inside and outside of cabs and bodies and all other parts of apparatus that shall receive a Top color coat to achieve required corrosion protection. After that a minimum of 2 coats of sealer shall be applied over the primer surface. The overall thickness of the primer/sealer coat shall be between 3 to 8 mils wet. Once dried and cured all surfaces that shall receive a top coat shall be hand sanded to achieve a flat and smooth surface to meet gloss and other paint quality standards. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements. The underside of the cab and body shall be finished with one coat of epoxy primer specifically designed for this application to prevent corrosion and provide chip resistance to typical paved road conditions.
- Top Coat Application – Each Top Coat final color on the apparatus is applied using a two stage paint process. The unit shall be thoroughly hand cleaned to eliminate dust residues and to detect any imperfection in the surfaces to be painted. A fast drying 3.5 VOC polyurethane basecoat color shall be applied using a cross coat application technique. Additional coats may be applied as required until the coat thickness reaches 2.0 to 6.0 mils wet and a full hide appearance. If a second color is required, proper masking shall be applied to the unit and the basecoat application process shall be repeated for the second color. A slow drying low VOC High Build clear coat shall be applied using a cross coat application technique until a minimum of 5.0 mils wet is achieved. The unit is then properly heated to assure flash and cure of the paint before leaving the paint booth. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements. Each batch of color topcoat shall be

Yes	No

tested for precise color match following paint supplier color matching process. A visual color match shall be checked prior to paint using customer approved paint chips.

- The cab and body shall be primed and finish painted prior to installation on the chassis to ensure paint coverage in all areas including the difficult to reach places. The exterior and interior of the cab shall be finish painted before the doors are installed or any assembly is started to ensure a finish painted surface beneath all trim items.
- Primer/ Surface Coating for Single Coat application – a minimum of 2 coats of Epoxy based primer shall be applied to all surfaces of the apparatus that shall receive a single color coat to achieve required corrosion protection. This is a wet coat process and it shall achieve a 3.0 to 8.0 mills wet thickness and complete coverage of all bare metal. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements.
- Single Coat Application – A minimum of 2 coats of direct gloss paint shall be applied over all primed surface to achieve corrosion protection and appearance. This application shall be used for Gloss Black, Job Color and Color finishes in parts of the apparatus such as frame rails, outriggers, ladders and other aerial devices, suspension and other chassis parts, etc. as defined in the sales order.
- Zolatone Coat Application – All areas to receive a Zolatone coat shall be primed following the primer/surface coating for top coat application. A high pressure coat of Zolatone paint shall be applied in a cross pattern technique to achieve smooth finished surface. A second low pressure coat of Zolatone paint shall be applied in a single pattern to achieve a textured appearance.
- Zolatone Clear Coat Application – Starting with a completed and dry Zolatone coat application 2 to 3 coats of Zolatone clear coat shall be applied until a thickness of 5.0 mills wet is achieved.

All painters shall be paint supplier certified. They shall be re-certified periodically in order to keep up to current standards and procedures required by the coatings manufacturer. This certification is performed independently by the paint supplier.

	Yes	No

FACILITY

The finishing facility shall be certified independently by the paint supplier by meeting or exceeding its extensive and stringent requirements. The paint facility shall be audited quarterly by the paint supplier to ensure proper equipment, procedures and safety regulations are being used and adhered to in order to assure paint quality requirements are met in every job. Y

PAINT - CAB INTERIOR

The inside of the cab shall be painted with black Zolatone paint following the Zolatone Coat application process. Y

The following components shall be painted:

- Exposed interior surfaces of the cab structure
- Exposed interior surfaces of the driver/officer/crew doors
- All interior "Metal" access/wire covers of the cab
- Head bumper brackets
- Miscellaneous brackets, if present: camera mounts, non-recessed radios, charger covers

PAINT

The cab shall be painted one color. The paint shall follow the Top Coat application process for a single color. Y

Cab exterior paint number is #__910785_____Color:___Red_____.

Note: Paint prices do not allow for metallic or pearlescent paint colors.

CAB DECORATIVE TRIM MOLDING

A decorative molding shall be provided around the cab. The decorative molding shall be horizontal across the front of the cab above the wipers and taper down with a radius even with the outside corners of the grille. Y

PAINT

The body of the apparatus shall be painted to match the primary cab color. The paint shall follow the Top Coat application process for a single color. Y

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	Yes	No
Body exterior paint number is #__910785_____Color:____Red_____.		
FINISH - OPERATOR STAND/PUMP/VALVES/PLUMBING The operator stand compartment interior, pump, intake and discharge valves, drains, drain lines, and foam system components, and all hard piping, shall have mill finish. All exposed pipe (not including cut threads) at the rear of the truck or welded pre-connect assemblies at the front of the body shall be painted.	Y	
PAINT CHASSIS FRAME ASSEMBLY The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc. Components that are included with the chassis frame assembly that shall be painted black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.	Y	
GRAPHICS A detailed description of all graphics to be determined at the pre-construction conference.	Y	
REFLECTIVE STRIPES Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the chassis cab and apparatus body. The reflective band shall consist of a 1.00" blue stripe at the top, then a 6.00" white stripe, and a 1.00" blue stripe on the bottom. There shall be no gap between striping. The reflective band provided on the cab face shall be at the headlight level.	Y	
CHEVRON STRIPING, REAR There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The entire rear surface, excluding the rear compartment door, shall be covered. The colors shall be red and fluorescent yellow, green diamond grade. Each stripe shall be 6.00" in width. This shall meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface shall be covered with chevron striping.	Y	

	Yes	No
CHEVRON STRIPING, FRONT BUMPER There shall be alternating chevron striping located on the front-facing vertical surface of the front bumper. The colors shall be red and fluorescent yellow, green diamond grade. Each stripe shall be 6.00” in width.	Y	
STOP SIGN AND REFLECTIVE CHEVRONS, CAB DOORS A 12.00" x 12.00" reflective stop sign shall be provided on the interior of each cab door. The stop sign shall be located on the stainless steel door panel. There shall be alternating chevron striping located on the interior of each cab door. The colors shall be red and fluorescent yellow, green diamond grade. Each stripe shall be 6.00” in width. The stop sign and chevrons shall meet or exceed NFPA 1901 requirements.	Y	N
LETTERING The lettering shall be totally encapsulated between two (2) layers of clear vinyl. Forty-one (41) to sixty (60) genuine gold leaf letters, 3.00" high, with outlining and shading shall be provided.	Y	
LETTERING ADDITIONAL 8.00” white reflective numbers with black outline shall be installed on the passenger cab front. 16.00” white reflective letters/numbers with black shading shall be installed on the rear side compartment doors, rear tailboard compartment and roof of the cab. Seventeen (17) genuine gold leaf letters, 8” high, with outlining and shading shall be provided for upper left (driver) side pump body.	Y	
WARRANTIES Each piece of new fire or rescue apparatus shall be warranted to be free from defects in materials or workmanship under normal use and service. Each manufacturer shall supply, as a part of their bid package, a copy of the warranty or warranties that they propose to provide. The bidder shall provide all optional warranty packages, such as extended warranties, etc., bid to include the cost of said packages. All other warranties, as outlined in these specifications shall be provided in writing as a part of the bid package. Failure to provide the warranties as outlined throughout these specifications shall be cause for rejection of the bid package. The following minimum warranties shall be furnished:	Y	

2022 Engine Specifications

	Yes	No
One (1) Year Material and Workmanship Each new piece of apparatus shall be provided with a minimum one (1) year basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (No Exception).	Y	
Fifty (50) Year Frame Structural Integrity The chassis frame shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (No Exception).		N
(10) Year Cab Structural Integrity The new cab shall be provided with a ten (10) year material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (No Exception).	Y	
Ten (10) Year Body Structural Integrity Each new piece of apparatus shall be provided with a ten (10) year material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (No Exception).	Y	
Engine The engine shall come with a five (5) year or 100,000-mile warranty provided by the Cummins Corporation.	Y	
Transmission The transmission shall have a five (5) year/unlimited mileage warranty covering 100% parts and labor. FRONT/REAR AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY plus TWO (2) YEAR PARTS WARRANTY A Meritor™ Axle 3 year limited warranty shall be provided.	Y	
Electronic Stability Control System, Anti-Lock Brake System & Automatic Traction Control The Wabco ABS/ATC system shall come with a three (3) year or 300,000-mile parts and labor warranty provided by Meritor Wabco Vehicle Control Systems.	Y	

2022 Engine Specifications	Yes	No
Water Tank The UPF poly water tank shall be provided with a lifetime material and workmanship limited warranty. A copy of the warranty certificate shall be submitted with the bid package (No Exception).	Y	
Pump A Waterous five (5) year warranty shall be provided for the pump. 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 delivery. A copy of the warranty shall be submitted with the bid. (No exception)	Y	
Gauges, Vacuum, And Pressure Gauges shall include a 10-year warranty against leakage, pointer defect, and defective bourdon tube.		
Ten (10) Year Non-Pro-Rated Paint and Corrosion Each new piece of apparatus shall be provided with a ten (10) year non-pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (No Exception).		N
Three (3) Year Gold Leaf Material and Workmanship The gold leaf lamination shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover the gold leaf lamination as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (No Exception).		
Loose Equipment The following equipment shall be furnished with the completed unit:		
• One bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts, and washers, as used in the construction of the unit	Y	
• One set of Zico folding wheel chocks with under body mounting brackets	Y	
• Turtle-Tile shall be provided for all compartment floors	Y	

Yes | No

- One 10 foot fiberglass I-beam handle pike pole

ENGINE QUESTIONNAIRE

Vendors must complete the questionnaire below regarding manufacturer, dealer and service center information:

MANUFACTURER	DEALER	SERVICE CENTER
Seagrave Fire Apparatus LLC	Fire & Specialty Equipment Company	Fire & Specialty Equipment Company
Mfg. Address 105 East 12th Street	Dealer Address 235 Rogers Drive	Service Center Address 235 Rogers Drive
City/State/Zip Clintonville,WI 54929	City/State/Zip Shepherdsville KY 40165	City/State/Zip Shepherdsville KY 40165
Mfg. Phone 715-823-2141	Dealer Phone 502-957-2145	Service Center Phone 502-957-2145
Apparatus Model Name DB 50 CA	520 Number of Days: Contract Award to Delivery	70 Driving miles from LFD to Service Center
Overall Length 360.25 Bumper to rub rail 372.0 Bumper to Ladders	Transmission Make and Model ALLISON 3000 EVS	Service Center Sq. Ft. 10,000
Overall Height 113.50" APPROX.	Pump Make and Model WATEROUS 1500 CSU	7 Service Center Number of Factory Trained
Overall Width 103" NOT INCLUSIVE OF MIRRORS AND HANDRAILS	Front Axle Capacity 20,000 LBS.	6 Service Center Number of Mobile Service
Wheelbase 180.50"	Front Axle Loaded Weight(Est.)	7 bay Service Center Number of Indoor Service
Curb-to-Curb Turning Radius	Rear Axle Capacity 27000 LBS.	Frame Dimension

2022 Engine Specifications

Yes	No

Engine Make & Model CUMMINS L9	Rear Axle Loaded Weight(Est.)	Frame Resistance To Bending 2,601,600 inch pounds
Engine Torque Rating 1250 LB-FT @1400 RPM	Hose Bed Height from Ground 70" +/- 1"	
Bidder Seagrave Fire Apparatus LLC	Dealer Signature scott adkins	Date 04/07/2022

Fire & Specialty Equipment Co.

Lexington-Fayette Urban County Government
RE: Invitation to Bid # 38-2022- Triple Combination Pumper

Clarifications and Exceptions

On behalf of Seagrave Fire Apparatus, LLC ("Seagrave"), I wish to submit the following clarifications for your review and consideration:

Boilerplate Page 9 of 25 item 12 **Cancellation** - Seagrave is taking exception to this.

Boilerplate Pages 13-25 **MWDBE Participation Goals** -- Since Seagrave produces highly-customized products and uses very specific suppliers, as defined in the bid documentation, this prevents Seagrave from having the opportunity to be afforded a number of choices for suppliers of their materials.

As a result of this, there are not enough subcontractors or suppliers from which to choose from in order for Seagrave to be able to meet the requirements of 10% procurement costs as a goal for participation of Minority-Owned Business Enterprise ("MBE"), Woman-Owned Business Enterprise ("WBE") and Disadvantaged Business Enterprise ("DBE") on this contract. It also prevents Seagrave from being able to meet the requirements of 3% for Veteran-Owned Small Business ("VOSB") on this contract.

We respectfully request that an exception be made in light of these circumstances.

Boilerplate Page 26-29 **Amendment 1** – Certification of Compliance for American Rescue Plan Act Expenditures – Seagrave is taking exception to this.

Page 11 **Delivery Schedule** - Proposed delivery is 560 days from approved drawing and updated specifications following pre-construction conference. Penalty shall be based on mutually agreed upon documents and drawings post pre-construction.

Page 12 **Manufacturer Sponsored Training** - Fire & Specialty Equipment Company will have three (3) familiarization sessions to take place at Lexington Kentucky Fire Department upon truck delivery.

Page 12 **Safety Video** - is not included in the Seagrave bid.

Page 13 **Specification Bid Requirements** - Seagrave proposal is laid out front to back of the apparatus and does not match order of Lexington Specifications. Please note that a list has

been added to help reference the Seagrave specifications. In addition, the Seagrave specifications will supersede the municipalities' specifications once agreed upon. This is what the preconstruction conference is for.

Page 17 **Website** - is not included as part of our proposal, nor is a dealer portal providing pictures.

Page 19 & 20 **Performance Bond** - Based on premium associated with a Performance Bond, the bond will be issued upon an awarded contract.

Page 21 **Max**. **OAL**- max calculate length is approx. 357" not inclusive of ground ladders or handrails --- see drawing for exact details

Page 21 **Wheelbase** - Wheelbase proposed is 180.50"

Page 23 **Suspension**- This is the new version with a model number ADZ-124 as proposed by Seagrave in this proposal.

Page 23 & 24 **Brakes** - Seagrave is proposing Disc brakes for both the front and rear axles as per Seagrave's standard.

Page 24 **Brake System Certified** - All certifications are by the axle manufacturer for specific application. Brake chamber and size shall be determined by the axle manufacturer as proposed by Seagrave in this proposal.

Page 25 & 26 **Air System** - Seagrave air tanks are secured with stainless steel cables coated in vinyl, but the mounts are steel.

Page 28 **Radiator** - Radiator proposed by Seagrave has a copper fin design. This is the same design utilized on the recently delivered Pumper. Please see specifications for exact details.

Page 32 **Frontal Impact** - Frontal Impact test was done utilizing a kinetic "ram cart" at IMMI and passed (video is on website)-plum bob not utilized.

Page 36 **Cab Doors** - Map pockets have not been included as part of Seagrave proposal--with door construction, chevron, stop signed this precludes this as an option.

Page 37 **Cab Doors** - Cab access doors handle position is down low -- upper is NA on Capitol Chassis/cab and is not needed as there is a lip behind the pin to prevent it from "snagging" objects.

Page 37 **Cab Interior** - Overhead Fascia is not painted, but is sprayed in Linex -- the individual switch panel plates are painted with Zolatone.

Page 37 **Interior Cab Insulation** - Insulation for side walls and ceiling is 1.25" thick on the Capitol Class Cab.

Page 40 **MDT Notch** - Due to the configuration of the Capital cab a recess in the front of the officer is not an available option.

Page 40 **Driver's Seat**- Proposed seat is an HO Bostrom Sierra Air 100 -- Seagrave does not offer ABTS seats as this would mean new crash testing.

Page 41 **Officer's seat** - Proposed is a Tanker #450, as #550 is not a Seagrave offering.

Page 41 **Rear Seating** - Proposed seating is (3) three Tanker #400 CT seats on rear wall (the wording of these paragraphs contradicted each other in the city specifications).

Page 44 & 45 **Bumper Troughs** - Please note that in the proposal we have set them all to be 13" in depth. See Seagrave specifications for exact dimensions.

Page 45 & 46 - Please note that due to wiper operations (2) two outer handrails on the front face of the cab will not work. In place of this, a single 18" handrail has been proposed in between the wipers on the center of the cab beneath the windshields.

Page 48 & 49 **Climate Control System** - Though this was not in city specifications, a crew cab air conditioner and associated intake and outflow valves have been added to the Seagrave proposal. This will match the recently delivered Pumper.

Page 53 &54 **Cab Instrumentation** - Please note that Seagrave gauges for the air system are not labeled front and back, but Primary & Secondary. In addition, wet tank gauges are not part of the Seagrave proposal. It is unclear what this would be utilized for.

Page 56 **Alarms** - Seagrave Alarms will have a steady tone and also a warble. Each denotes different items.

Page 56 **Indicator Lamp and Alarm Prove-Out** - Prove out happens when ignition is engaged. The ignition switch is a maintain switch and does not require an operator to hold it for three (3) to five (5) seconds to force prove-out.

Page 57 **Radio Antenna** - A diagram of all the roof structure and headliner splits, etc. is not being proposed, nor are any holes in the headliner. Seagrave will be installing and running the antenna lines as needed. It is not recommended that a non-Seagrave entity deconstruct the cab and options post-delivery.

Page 58 **Radio Equipment Power-Buss Bars** - Have been provided beneath the officer's seat, engine tunnel, overhead switch panel, and lower dash area that can be utilized to supply power for radio equipment (see Seagrave proposal for exact details).

Page 58 **Electrical Power Control System** - Seagrave utilized components shall be used as proposed.

Page 58 **EMI/RFI Protection** - The electrical system and harnesses have been designed to meet and exceed SAE J551 requirements. In addition, ground straps are utilized for the cab,

pumphouse, and body to ensure that there is not any electromagnetic interference. Please note that due to the variability in vendor components (i.e., anything from battery charges to pressure governors and beyond) from truck-to-truck, testing to be accurate would need to be done on every unit out there and would be cost prohibitive.

Page 59 **Battery System** - "J" shaped mounting clamp bolts will now total (4) four in place of (2) two—product improvement.

Page 59 **Battery Disconnect Switch** – Due to the configuration, this will need to be located on the Driver's side.

Page 60 **Battery Charger** - Battery charger proposed is a #1200 as requested, but the model number in the City specification is out of date. Please see Seagrave specifications for current model number.

Page 61 - **Hubbell** style receptacle is mounted to stainless-steel cab side.

Page 61 -63 **Body** - Seagrave Matrix Body has been designed, strain gauged and gone through FEA. Test parameters were set to provide longevity and durability for the intended severe use in the fire service.

Page 63 & 64 – **Body dimensions** are reflective of a hinged door body, but page 64 of City specifications requires roll up doors. This will alter some of door opening and useable space dimensions. Seagrave specifications propose a roll up door body with the corrected dimensions.

Page 66 **Water Tank** - Seagrave is proposing a 12"x 12" fill tower.

Page 67 **Hose Bed** - Due to the height of the partitions and requested load, Seagrave is proposing rounded partition reinforcements for the partitions

Page 66 & 67 **Water Tank** – Area on raised portion of water tank is covered in NFPA compliant treadplate. Hose bed area has traditional aluminum style grating.

Page 68 **Running Boards** - Running board supports are Seagrave design, not tubing and walls of troughs are smooth but not tapered.

Page 68 **Tow Bar**- This is not included as part of the Seagrave proposal.

Page 68 & 69- **Handrails**- Seagrave does not provide a vertical handrail on the front bulkhead of body-Please note that there are handrails on the pumphouse and catwalks of the body and in addition (2) 8"and (2) 18" have been included in the bid to locate.

Page 69 **Additional steps**-In addition to the required steps at rear of the apparatus, (3) steps have been included for the driver's side front of body and (1) step has been included for the officer's side front body-no other additional steps have been included in the proposal.

Page 70 **Air Cylinder**- Please note that the body fenders (driver's side) hold (4) SCBA bottles- per NFPA with (5) firefighters; Lexington will be required to find a mount for a fifth fireman to be NFPA compliant.

Page 72 **Pump Shift**- Air pump shift is controlled by an electric over air toggle switch- Capital dash design precludes usage of the traditional air shift control.

Page 73 **Pump Shift Back up**- While it may be possible to not have a cable control for the pump shift over-ride, it will be inclusive of many more points of failure vs. the Seagrave cable design which is simple and effective.

Page 75 **Pump Manuals**- Waterous manuals are only available as electronic.

Page 76 **Akron valves** utilized proposed are 8600 & 8800 series valves.

Page 76 **Inlet** (**Left Side**) – The valve will be recessed behind the panel and have a swing valve control extending through the panel.

Page 77 **Inlet Front**- The valve for the front intake is on the driver's side of the truck at the bottom of the driver's side pump intake casting. This makes an over-ride on the officer's side not possible-it is not included in Seagrave proposal.

Page 77 **Tank Refill**- Seagrave is proposing a 2" tank fill valve so as not to exceed the tank manufacturer's requirements for fill rate thus voiding the tank warranty.

Page 77 **Tank to Pump**- A 3" Akron valve is proposed.

Page 78 **Discharge Caps**- Specified caps will be class 1 Chrome Plated Brass with NFPA required pressure relief grooves.

Page 78 **Elbows LDH**- Will be included as part of the DFI and will not be on the unit at factory.

Page 78 **Discharge Outlet Front**- City specifications request a 2.5 swivel elbow with a reducer to 1.5 and 2 valve and plumbing going up to the 2.5 outlet-Seagrave is proposing a 2.5 valve and plumbing going to the 2.5 swivel outlet-this provided better flow and less friction loss up to the swivel.

Page 79 **Discharge Outlets Rear**- Due to plumbing requirements for smooth panel layout and manifolding there will be elbows within the confines of the pumphouse to direct water to the rear outlets on the apparatus.

Page 80 **Backboard Compartment**: Backboard sleeve is located within hose bed of the body. Please note dimensions specified in proposal as there are many "standard" backboard sizes available- any difference in location may/will be subject to additional costs/pricing.

Page 81 – **Seagrave Master gauge** panel is flat in configuration. An Angled panel would preclude usage of the steps of the front face of the body.

Page 82 **Water Level Gauge**- Seagrave is proposing the new FRC tank level gauge with (9) LED.

Page 84- **Front FVMSS LIGHTS**- Headlights proposed are the Truck-lite LED as was utilized on the recently delivered Pumper.

Page 84 **Rear FVMSS LIGHTS**- Brake Light additional from Whelen model is different- see specifications.

Page 84 **Rear ID/Marker lights**- Seagrave proposal is inclusive of TecNiq DOT rear maker lights ipo Truck-lite.

Page 85 **Back up Alarm**- Seagrave proposed alarm is an Ecco SA914, Auto DBA adjust.

Page 85 **Compartment lighting**: Seagrave proposed compartment lights a ROM brand which is the city specification requested door builder. The lights are integrated into the door track from ROM. It is not recommended and may not be possible to mount Amdor lights on ROM doors. Lights are white in color.

Page 85 **Open door indicator light**-There is (1) indicator light in the ceiling and the display for the Intelex will identify exactly which door is open with a diagram and door open display on the diagram.

Page 86 **Ground Lights**: Seagrave proposed ground lights will be TecNiq brand as utilized on recently delivered Pumper.

Page 86 & 87- **12 Volt Lighting**: The Whelen PELCC light on the back of the cab is not included in proposal-it will not be practical when the cross lay cover is raised, it will be blocked. In addition to this there already is a TecNiq brand light in the open bin area of the pumphouse.

Page 87 **Deck Lights**: Seagrave proposal is inclusive of these lights, but the placement would be at the end of the body (like pickup lights) this will be in keeping with the requested overall height and packing the hose load (exact details can be discussed at preconstruction conference).

Page 87 **Warning Lights**- (Cab Roof) Proposed lightbar In Seagrave specifications is slightly different (please see diagram in proposal). It is matching that utilized on recently delivered units.

Page 88 **Warning Lights Mini Lightbars**- These lights are switched off from the E master switch with the rest of the warning lights-they can have their own switch, but this will incur additional costs.

Page 89 **110 VOLT interior receptacles**-20 amp is being proposed.

Page 89 thru 91 **Paint**- As proposed in the proposal.

Page 94 **Lettering additional** – since quantities for the additional 8” white letters 16” letters were not specified pricing could not be calculated. A $3,000.00 lettering and graphics allowance is included in Seagrave proposal. Any cost above and beyond this are the responsibility of the purchaser.

Page 94 **Stop sign** & **Reflective Chevrons**- Cab doors are inclusive of stop signs which meet NFPA reflectivity requirements-Additional chevron will not fit with door size and other required warning labels.

Page 95 Frame warranty is lifetime vs (50) year – see frame warranty.

Page 95 Cab structural warranty is (15) year vs (10) year.

Page 95 Body structural warranty is (15) year vs (10) year.

Page 95 Paint warranty proposed will be pro-rated per Seagrave paint warranty.

*****Please note that the above items are not all inclusive and there may be other items differing between the Seagrave proposal and the city specifications. Please see Seagrave specifications for what is exactly proposed.

Respectively Submitted By:

Scott Adkins

Sales Representative

Fire & Specialty Equipment Company LLC

Fire & Specialty Equipment Company

One (1)	== Boiler Plate - SFA Pumper - 0.000 ==	Y___N___
One (1) 00-03-1100	BOILER PLATE	Y___N___
One (1) 00-03-1101	REQUIRED CUSTOMER ORDER INFORMATION (in Tech Note)	Y___N___
One (1) 00-03-110A	Contract "P" - Progress Payment	Y___N___
One (1) 00-03-230A	Payment Terms - "P" Progress Payments, 25%, 25%, 25%, 20%, 5%	Y___N___

PAYMENT TERMS

Progress payments shall be made as follows: The first payment shall be 25% of the Contract price, made at arrival at the Factory of the major components. The second payment shall be 25% of the Contract price, made at chassis laydown. The third payment shall be 25% of the Contract price, made at completion of the chassis. The fourth payment shall be 20% of the Contract price, made upon completion of the Final Inspection at the Factory, prior to shipment. The fifth and final payment shall be 5% of the Contract price and shall be made upon delivery to and acceptance by the Purchaser.

One (1) 00-04-6810	Delivery Penalty 560 days $500 day	Y___N___

DELIVERY PENALTY

Seagrave Fire Apparatus shall furnish and deliver the apparatus within Five Hundred Sixty **(560) Calendar Days** from receipt of order by Seagrave, Clintonville, WI; provided, however, the order shall be fully specified, accurate and completely defined. In the event that the order is not fully specified, accurate and completely defined, the delivery date shall be adjusted as determined by Seagrave. Any resulted delivery penalty will only be applicable after such amended delivery date. Liquidated damages in the amount of **$500.00 per day** shall go into effect on the **Five Hundred Sixty-First Calendar Day** or such amended delivery date unless due to force majeure events, change order or other actions of the purchaser that cause a delay and are beyond the control of Seagrave.

One (1) 00-04-0010	Proposal Expiration - SPCL	Y___N___

PROPOSAL EXPIRATION

Fire & Specialty Equipment Company

Unless this proposal is accepted within 30 days from the date of the quotation, Seagrave reserves the right to either change the price or any other terms or withdraw this proposal in its entirety.

Purcherser request that Bid may not be withdrawn and will stand for ninety(90) calendar days. Bidder shall submit additional pricing effective July 1, 2022 for potential future purchases in single units increments from one (1) to four (4) units throughout the fiscal year 2022

One (1) 00-04-0015 Federal & State Regulations, NFPA Standards & Import Tariffs Y___N___

FEDERAL & STATE REGULATIONS, NFPA STANDARDS & IMPORT TARIFFS

In the event that any applicable Federal or State Regulations (DOT, FMVSS, EPA, etc.), National Fire Protection Association Standards or import tariffs which are enacted during the course of this contract, and which requires a change in the contract specifications and purchase price in order for the Apparatus and Equipment to comply with such regulation, the parties will execute a change order describing the change in the specifications and increasing the purchase price by an amount equal to the increase in the costs of producing the Apparatus and Equipment.

One (1) 00-04-0120 Intent of Specifications Y___N___

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the design, manufacture and delivery to the purchaser of a complete fire apparatus equipped as specified herein. These specifications include the general requirements of design, material content and construction as well as certain equipment that shall be provided by the contractor. Not all details of the design, material content and construction of the fire apparatus are herein specified. Any such design, material content and construction not specified herein are left to the sole discretion of the seller contractor.

One (1) 00-04-01A0 Compliance with NFPA 1901 Y___N___

COMPLIANCE WITH NFPA 1901

The National Fire Protection Association Standard “NFPA 1901 - Standard for Automotive Fire Apparatus - Current Edition” (hereinafter referred to as NPFA 1901) in effect at the time of the purchase shall be used as a reference and its requirements shall be met by the apparatus manufacturer. The apparatus shall be constructed in accordance with federal and state laws at the time of bid. Any federal, state or NFPA amended changes that shall affect the cost of producing said apparatus shall be charged to the purchaser. Mandatory minor apparatus equipment as stated in the applicable paragraphs of the NFPA standard shall not be provided unless specifically stated and listed in purchaser's written

specifications.

Any and all references to "NFPA 1901" within this document shall refer to the current edition of NFPA 1901 in effect at the time of the purchase.

One (1) Purchaser's NFPA 1901 Responsibilities Y___N___
00-04-01B0

PURCHASER'S NFPA 1901 RESPONSIBILITIES

In accordance with NFPA 1901, current edition, it shall be the responsibility of the purchaser to specify the following details of the apparatus:

- Its required performance, including where operations at or above elevations of 2000 ft. or on grades greater than 6 percent are required.
- The maximum number of firefighters to ride within the apparatus.
- Specific electrical loads that are to be part of the minimum continuous electrical load as defined in current edition of NFPA 1901 at the time of bid.
- Any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of the NFPA 1901 standard in effect at the time of the bid. Equipment weight and location on the apparatus are the responsibility of the purchaser as a prerequisite of defining the loaded vehicle's vertical center of gravity for rollover stability calculations, when required.

One (1) Acquaintance with Specifications - meets Requirements Y___N___
00-04-023E

ACQUAINTANCE WITH SPECIFICATIONS

Seagrave Fire Apparatus LLC and its Sales Representatives have reviewed your bid specifications. It is our opinion that the fire apparatus as depicted in this proposal meets or exceeds the requirements of the bid specifications. The purchaser is required to review our Contractor's Specifications contained herein. Because of the intricacies in fire apparatus design, engineering and manufacturing, the Contactor's Specifications, along with any mutually approved changes, shall prevail in the event of a discrepancy between the purchaser's original bid specifications and the contractor's specifications.

One (1) Single Source Manufacturer - SFA Custom Chassis Y___N___
00-04-0430

SINGLE SOURCE MANUFACTURER

Seagrave is a single source fire apparatus manufacturer. A single source manufacturer is defined as a manufacturer who designs, engineers and manufactures the entire apparatus in the factory of the bidder. The use of commonly incorporated components such as the diesel engine, the transmission, the pump, lighting fixtures, etc. is acceptable. However, calling the cab/chassis/drivetrain or the outriggers/torque box/aerial device a "component" shall not be acceptable. Single source warranty and service provision from Seagrave Fire Apparatus, LLC and its distributors, sales representatives and service network shall be

provided to insure parts availability and undivided warranty responsibility. There shall be no exceptions to these conditions.

One (1) 00-04-1100 Third Party Manufactured Products - Discontinuance Policy Y___N___

DISCONTINUANCE POLICY

The apparatus manufacturer furnishes and installs components which are manufactured by 3rd Party Vendors. From time to time, these products are either changed or discontinued by the manufacturer. The apparatus manufacturer reserves the right to replace a discontinued 3rd Party Vendor manufactured component with an equivalent model.

One (1) 00-04-1110 Standard Placement of Components Y___N___

STANDARD PLACEMENT OF COMPONENTS

Any deviation from the apparatus manufacturer's standard placement shall incur additional charges.

Five Hundred Sixty (560) 00-04-5710 Completion Date Y___N___

COMPLETION DATE

Barring any significant change in our current backlog of orders, and delays due to strikes, war or international conflict, failures to obtain materials, or other causes beyond our control not preventing, the apparatus and equipment detailed in the attached specification shall be delivered to you within approximately **Five Hundred Sixty (560) Calendar Days** after receiving the complete order and signed approval drawing. It shall be understood and agreed that changes requested after the order placement and the resulting signed change orders and approval drawings, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

One (1) 00-04-5910 Proposal Drawings Y___N___

PROPOSAL DRAWINGS

Included with our proposal are line drawings of the apparatus being proposed. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawings show five (5) views of the vehicle: front, rear, both sides and top. The drawings show the wheelbase and overall dimensions of the apparatus, proposed compartment sizes and features, booster tank position and the location of all emergency warning equipment, work lights, seating and other major items that are to be provided on the apparatus.

One (1) Turning Radius Drawing Y___N___
00-04-5B10

TURNING RADIUS DRAWING

A turning radius drawing has been provided showing the turning radius of the vehicle as configured in the proposal. The diagram shall show the curb-to-curb and wall-to-wall clearance as well.

One (1) Bid Bond - 10% Y___N___
00-04-6210

BID BONDS

Each bidder shall supply with their bid proposal a bid bond in the amount of 10% of the proposed contract amount. Bid Bonds by salesmen or agents of the manufacturer are not acceptable. Bids shall expire after 30 days immediately following the date of the bid proposal. All required insurance coverage shall be underwritten by insurers legally allowed to conduct business in all states of the U.S. and shall have a policy holders rating of "A" or better in the latest evaluation by A. M. Best Co.

Proposals received from bidders who do not build the chassis shall provide a warranty that is issued jointly and severally by, and signed by, both the bidder and manufacturer of the chassis. Bidders who build their own chassis shall provide a warranty issued in their name only.

If the successful bidder does not manufacturer the chassis, the bidder shall supply a separate warranty bond which guarantees all terms and conditions of the warranty and names, as co-principals, both the bidder and the chassis manufacturer. This warranty bond shall be issued for the contract amount and shall remain in force for a term which is consistent with the term of the warranty quoted in the bid.

No exception to these requirements shall be allowed if the bid is to be considered compliant.

One (1) Performance Bond - 100% Y___N___
00-04-6410

PERFORMANCE BOND

The successful bidder shall furnish a 100% Performance Bond within 10 days after receipt of purchase order or signed contract. The bond is to be furnished by the company who will build the apparatus proposed. Bonds by salesmen or agents of the manufacturer are not acceptable. All required insurance coverage shall be underwritten by insurers legally allowed to conduct business in all states of the U.S. and shall have a policy holders rating of "A" or better in the latest evaluation by A. M. Best Co.

No exception to these requirements shall be allowed if the bid is to be considered

compliant.

One (1) Approval Drawings Y___N___
00-04-7000

APPROVAL DRAWINGS

Following the acceptance of a complete and approved order, three (3) sets of engineering, blueprint type drawings, specifically for this apparatus, shall be provided by the manufacturer and shall be approved by the Fire Department before construction begins. Both the Fire Department and the manufacturer's representative shall have a copy of this drawing. It shall become part of the total contract. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The drawings shall show the wheelbase and overall dimensions of the apparatus, final compartment sizes and features, booster tank position, the location of all emergency warning equipment, work and scene lights.

One (1) Change Orders Y___N___
00-04-7100

CHANGE ORDERS

To ensure the proper engineering and construction of the purchaser’s custom fire apparatus in a timely manner, the contractor shall consider the order final and complete at placement of the order. Change orders requested after the order placement are discouraged. It shall be understood and agreed that any changes, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

One (1) Pre-Construction Conference, Travel Included Y___N___
00-04-811C

PRE-CONSTRUCTION CONFERENCE

One (1) "Pre-Construction" conference trip for representatives of the purchaser shall be included in the bid. The conference shall be held at a company facility or an authorized representative's facility during normal business hours, Monday - Friday. All cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the trip. The conference shall be held prior to the commencement of any work being done on the apparatus. Factory sales and engineering personnel shall participate in the conference as needed to ensure that the apparatus fulfills all the requirements of the accepted bid. Authorized representatives from both the purchaser and manufacturer shall approve and sign any changes made during these meetings prior to the commencement of any work being done on the apparatus.

It is understood and agreed that delays beyond thirty (30) days of contract approval for Pre-Construction conference changes in specifications shall be cause for delay in delivery.

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Three (3) 00-04-813Z — Number of Fire Depart Representatives Attending Pre-Construction Conference (Ea) Y___N___

Three (3) fire department representatives shall attend the Pre-Construction Conference.

One (1) 00-04-823C — In-Process Inspection - Clintonville, WI, Travel Included Y___N___

IN-PROCESS INSPECTION TRIP

One (1) "In-Process" inspection trip for representatives of the purchaser shall be included in the bid. The inspection shall take place at the Seagrave factory in Clintonville, WI, during normal business hours, Monday-Friday. The cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the inspection trip. The inspection shall not be longer than one (1) day unless multiple vehicles are being inspected.

Three (3) 00-04-823Z — Number of Fire Department Representatives Attending In-Process Inspection (Ea) Y___N___

Three (3) fire department representatives shall attend the In-Process Inspection.

One (1) 00-04-831C — Final Inspection, Travel Included Y___N___

FINAL INSPECTION TRIP

One (1) "Final" inspection trip for representatives of the purchaser shall be included in the bid. The inspection shall take place at a Company facility or an authorized representative's facility of the Company's during normal business hours, Monday - Friday. The selection of the inspection location shall be done at the sole discretion of the Company. The reasonable and customary cost of transportation, meals and lodging shall be included. An authorized distributor or manufacturer's sales representative may accompany the Purchaser on the inspection trip.

Three (3) 00-04-834Z — Number of Fire Department Representatives Attending Final Inspection (Ea) Y___N___

Three (3) fire department representatives shall attend the Final Inspection.

One (1) 00-04-831Z — A proposed pump panel layout shall be provided to the customer prior to the prec Y___N___

One (1) 00-04-8360 — Final Inspection - Underside Y___N___

UNDERSIDE FINAL INSPECTION

During "Final" Inspection, the complete vehicle shall be raised, allowing the Fire Department Inspection team to walk under the apparatus to review the complete underside.

One (1) — Pump Operation Inspection Y___N___

00-04-8366

PUMP OPERATION FINAL INSPECTION

During "Final" Inspection, the vehicle shall be pumped at the manufacturer's facility. The operation shall be for no more than one (1) hour and shall consist of water only.

One (1) Pre-Delivery Road Trip and Final Factory Checklist Y___N___
00-04-8400

PRE-DELIVERY ROAD TRIP AND FINAL FACTORY CHECKLIST

Prior to delivery, the completed apparatus shall be thoroughly inspected by the factory. This inspection shall include a road test of the apparatus. During the factory inspections and road testing, a checklist shall be utilized by factory personnel to document the inspection and road test results. The checklist shall include:

- Documentation of the make, model and serial numbers of all major components such as the engine, transmission, pump, axles, etc.
- Complete, comprehensive operational check of all chassis/drive train components and fluid levels.
- A comprehensive review of the entire exterior and interior of the apparatus for fit and finish, checked against the customer's order specifications, and any ensuing change orders.
- A thorough test of all driving systems under actual highway and city driving conditions.

One (1) Final Delivery - Zone 3 Y___N___
00-04-8463

DELIVERY

The fire apparatus shall be delivered over the road and under its own power to insure proper break-in of all driving components while still under warranty. Rail or truck freight shipment of the apparatus is not acceptable.

Delivery shall be to an area located in Zone 3.

One (1) Familiarization - Pumpers/Rescues Y___N___
00-04-8510

FAMILIARIZATION

An experienced and qualified distributor or sales representative shall familiarize Fire Department personnel (as designated by the authority in charge) in the proper operation, care and maintenance of the apparatus delivered.

The representative must be a qualified, trained agent of the local authorized distributor or sales representative, or a direct employee of the manufacturer of the apparatus.

The familiarization period shall consist of three (3) sessions over a period of three (3)

consecutive days, during the normal work week (Monday - Friday). The schedule of the instruction sessions shall be arranged by mutual agreement of the Fire Department and the delivering authority. The number, length and time of the sessions may vary due to the nature of the apparatus and availability of attendees and must be approved in advance. The balance of any time remaining in a session may be devoted to minor adjustments or corrections to the apparatus for items which may have developed while in transit from the factory.

One (1) General Design Requirements - S/S Custom Cab, S/S Body Y___N___
00-05-013A

GENERAL DESIGN REQUIREMENTS

The specified apparatus shall be a custom cab type; designed, engineered and manufactured specifically for the fire service in North America. The apparatus meets or exceeds the requirements of the NFPA 1901, current edition, in all respects.

Seagrave's deluxe custom cab chassis shall be provided. It incorporates an all steel cab for strength, durability and safety. The cab and body sheet metal shall be constructed of stainless steel, no exception. The Seagrave cab incorporates a protective safety-cage design that totally surrounds and protects the seat belted driver, officer and crew. The safety-cage, composed of heavy gauge stainless steel, makes the Seagrave deluxe cab an extremely strong cab.

One (1) Gross Vehicle Weight - with Certificate at Delivery Y___N___
00-05-0210

GROSS VEHICLE WEIGHT

The manufacturer shall be responsible for proper weight distribution upon the chassis and axles.
The apparatus when loaded, shall have not less than 25% nor more than 45% of the weight on the front axle and not less than 55% nor more than 75% on the rear axle. A certified weight certificate showing weights on the front axle, rear axle and total weight for the completed apparatus with the water and fuel tanks full, but without personnel, equipment and hose shall be provided at the time of delivery.

In accordance with NFPA 1901, it shall be the responsibility of the purchaser to notify the manufacturer in the purchaser's specification of any hose, ground ladders, or equipment to be carried by the apparatus that exceeds the minimum requirements of the NFPA 1901 standard in effect at the time of the bid.

One (1) Customer Declared Equipment Weight - 2001 To 2500 LB Evenly Distributed Y___N___
00-05-032X

CUSTOMER DECLARED EQUIPMENT WEIGHT

The customer declared equipment weight shall be from 2001 to 2500 pounds. This weight shall be evenly distributed.

One (1) 00-05-1010 Apparatus Overall Height-shall not exceed 114 inches. Y___N___

APPARATUS OVERALL HEIGHT

The overall height of the completed apparatus shall not exceed **114 inches**. This measurement shall be taken with the water tank empty and no hose, equipment or personnel on the apparatus. All permanently mounted equipment shall be in the stowed/travel position.

One (1) 00-05-2000 General Construction, Quality and Workmanship Y___N___

GENERAL CONSTRUCTION, QUALITY AND WORKMANSHIP

The design and construction of the apparatus shall embody standard automotive heavy vehicle engineering practices. The apparatus shall be designed, engineered and constructed with due consideration for the severe service nature of the fire service. All parts of the apparatus shall be installed in accordance with the OEM specifications.

Distribution of load between the front and rear axles shall be engineered so that all specified equipment, including a filled water tank, full complement of personnel and fire hose shall be carried without damage to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association and current standard automotive practices.

All welding personnel that shall be utilized in the fabrication and construction of structural components of the apparatus chassis, body and aerial device shall hold a valid certificate from the AWS - American Welding Society.

The apparatus shall be designed to conform to applicable ANSI and NFPA 1901 standards. The following design criteria shall be applicable to this specification to the extent specified herein:

- American Society for Testing Materials (ASTM) - A-36, Specification for Structural Steel
- Society of Automotive Engineers, Inc. (SAE) - SAE Handbook
- American Welding Society (AWS) - AWSO14.4-77 Classification and Application of Welded Joints for Machinery and Equipment
- American Society for Non-Destructive Testing (ASNT)

All sensitive components shall be protected against adverse weather conditions. Any exposed metal surface which is not painted or otherwise coated shall have a bright finish. Corrosion protection shall be provided between any dissimilar metals joined in the construction of this apparatus.

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One (1) 00-05-2110 NFPA 1901 Stepping Surface Certification Y___N___

STEPPING SURFACE CERTIFICATION

A certification that all materials used for exterior surfaces designated as stepping, standing and walking areas, all interior steps and all interior floors meet the slip resistance requirements of the applicable edition and section of NFPA 1901 shall be provided with the delivery documentation.

One (1) 00-05-300U Pump Test and Certification - UL Y___N___

PUMP TEST AND CERTIFICATION

The fire pump shall be tested by Underwriter's Laboratory (UL) at the apparatus manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests and the manufacturer's record of pump construction details shall be provided with the delivery documentation.

One (1) 00-05-300Y Total Vehicle Assessment Certification (no Exception) Y___N___

One (1) 00-05-4000 Performance Requirements and Test - NFPA Y___N___

PERFORMANCE REQUIREMENTS AND TEST - NFPA

A road test shall be conducted with the apparatus loaded per NFPA recommendations (unless otherwise specified) and a continuous run of ten (10) miles or more shall be made during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus.

The apparatus must be capable of accelerating to 35 mph from a standing start within 25 seconds on a level highway without exceeding the maximum governed rpm of the engine.

The fully loaded vehicle shall be capable of obtaining a minimum top speed of 50 mph on a level highway with the engine not exceeding its governed rpm (full load).

The apparatus shall be able to maintain a speed of 20 mph on any grade up to and including 6%.

The service brakes shall be capable of stopping the fully loaded vehicle in 35 feet at 20 mph on a level highway.

The apparatus shall be tested and approved in accordance with NFPA standard practices.

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One (1) == Cab/Chas - CAP Pumper - 0.000 == Y___N___

One (1) Capitol S/S Tilting Cab - Side Mt. Pumper Y___N___
10-00-3010

GENERAL

Chassis shall be a new, heavy-duty, custom fire apparatus design built expressly for the fire service. All standard components that have not been specified shall be provided.

Chassis shall be designed, engineered and built by the bidder and be the manufacturer's first line custom chassis.

The chassis shall be suitable for heavy duty service with all components having adequate strength and capacity for the intended load to be sustained and the type of service required.

One (1) Wheelbase-180.50" Y___N___
10-00-9910

WHEELBASE

The wheelbase shall be: **180.50 inches.**

Five (5) Seating Capacity Y___N___
10-00-9920

SEATING CAPACITY

The safe seating capacity of the cab for properly belted passengers shall be: Five (5)

One (1) Approach - Departure Angles Y___N___
10-00-9935

APPROACH - DEPARTURE ANGLES

An angle of approach and an angle of departure of at least 8 degrees shall be maintained at the front and the rear of the vehicle when it is loaded to the estimated in-service weight, as defined by NFPA 1901 current edition.

One (1) Gross Vehicle Weight Ratings Y___N___
10-00-9940

GROSS VEHICLE WEIGHT RATINGS

Front Vehicle Weight Rating shall be: **[20,000#]**
Rear Vehicle Weight Rating shall be: **[24,000#]**
Gross Vehicle Weight Rating shall be: **[44,000#]**

One (1) Frame - 10.25"/12.5" Vari Sect. Rail, 2.6016m RBM (180-219" Wheel Base) Y___N___
10-10-1200

FRAME

The chassis frame shall be built with two variable section steel channels with a minimum of six (6) cross members. Pump shall not be counted as a cross member. The side rails shall be of heat treated steel with tapering measurements. Each rail shall have a section modulus of 21.7, a minimum elastic limit of 120,000 PSI and a minimum resisting bending moment of 2,601,600 inch pounds. The cross members shall be of heavy duty, fabricated, all-welded design, made out of a minimum of 50,000 psi material. The frame and cross members shall be a bolted assembly utilizing 5/8" flange head grade eight bolts and Spiralock® flange nuts. Spiralock® nuts shall be used exclusively in the frame assembly for mounting spring hangers, steering gear, engine, transmission, etc. because of their ability to maintain a constant torque tension and prevent vibration loosening. Their design shall provide for an even thread load distribution over the bolt, increased fatigue strength and life, and clamping torque. All holes made must be used and any holes in the frame for options not required on this chassis are not acceptable.

Frame rails less than or equal to 480" in length shall receive a duo-coat primer: an E-coat followed by a powder coating. This duo-coat process meets 1000 hours of salt spray testing per ASTM B117 test procedure. Frame rails greater than 480" in length shall be powder coated only. The inside of the rails shall be hand re-sprayed to insure coverage. This process meets 240 hours of salt spray testing per ASTM B117 test procedure.

One (1) Bumper - 10.25" High (NYC Style) Mitered Corners, Painted Y___N___
10-10-5000

BUMPER

A heavy duty 10-1/4" high x 1/4" thick painted steel bumper shall be mounted to the front of the chassis and be fabricated in the factory of the bidder. The bumper shall be channel shaped with 2" flanges and its ends shall be angled 45 degrees for a distance of 5". The bumper shall be painted to match the lower cab color.

As part of the bumper extension, a second formed channel with 2" flanges shall be provided directly behind the full width of the flat portion of the bumper. The bumper extension support shall be of channel (minimum 9-7/16" x 3" x 3/8") construction, bolted to the chassis frame stub. A 3/16" aluminum tread plate gravel pan (deck) contoured to fit just below the front face of the cab and just below the upper bumper flange shall be provided. The gravel pan shall not be fastened to the top flange of the bumper.

One (1) Bumper Mounting Bolts - Stainless Steel Y___N___
10-11-0060

The visible mounting bolts for the bumper shall be stainless steel.

One (1) Bumper Extension - 24" Y___N___
10-12-0024

24" BUMPER EXTENSION

A bumper extension shall be installed at the front of the cab. The front of the bumper shall be approximately 24" from the front face of the cab. A gravel pan made of 3/16" aluminum tread plate shall be installed between the front bumper and the cab. The bumper extension shall be designed and constructed so that the apparatus can be pulled by the extension.

One (1) Bumper Extension shall be Liftable & Towable Y___N___
10-12-00A0

LIFTABLE AND TOWABLE BUMPER EXTENSION

The bumper extension shall be designed and constructed so that the apparatus can be lifted and towed by the extension.

One (1) Front Bumper Trough - Center, 24" Extension w/ 2 Centered Air Horns Y___N___
10-12-0140

FRONT BUMPER TROUGH - CENTER

A bumper trough shall be installed in the center of the bumper extension. It shall have interior dimensions of 17.75" wide x 20.00" long x 13" deep. It shall be constructed of smooth aluminum and be easily removable from the gravel pan. Drain holes shall be provided.

One (1) Dri-Dek® - Front Bumper Compartment (Ea) Y___N___
10-12-5400

Black Dri-Dek® shall be provided in the bottom of one (1) front bumper compartment(s). Ramped edging shall not be included.

One (1) Retaining Strap - Velcro for Front Bumper Trough Y___N___
10-12-5980

VELCRO RETAINING STRAP

A two-piece black polypropylene Velcro retaining strap shall be provided for the hose well. It shall be permanently attached to the gravel pan on the front and rear of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops.

One (1) Front Bumper Trough - Left, 24" Extension Y___N___
10-12-0230

FRONT BUMPER TROUGH - LEFT

A bumper trough shall be installed on the left side of the bumper extension. It shall have interior dimensions of 15.25" wide x 16.25" long x 13" deep. It shall be constructed of smooth aluminum and be easily removable from the gravel pan. Drain holes shall be provided.

One (1) Dri-Dek® - Front Bumper Compartment (Ea) Y___N___
10-12-5400

Black Dri-Dek® shall be provided in the bottom of one (1) front bumper compartment(s). Ramped edging shall not be included.

One (1) Retaining Strap - Velcro for Front Bumper Trough Y___N___
10-12-5980

VELCRO RETAINING STRAP

A two-piece black polypropylene Velcro retaining strap shall be provided for the hose well. It shall be permanently attached to the gravel pan on the front and rear of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops.

One (1) Front Bumper Trough - Right, 24" Extension w/ Suction Swivel Y___N___
10-12-033A

FRONT BUMPER TROUGH - RIGHT

A bumper trough shall be installed on the right side of the bumper extension inboard of the front suction. It shall have interior dimensions of 15.25" wide x 16.25" long x 13" deep. It shall be constructed of smooth aluminum and be easily removable from the gravel pan. Drain holes shall be provided.

One (1) Dri-Dek® - Front Bumper Compartment (Ea) Y___N___
10-12-5400

Black Dri-Dek® shall be provided in the bottom of one (1) front bumper compartment(s). Ramped edging shall not be included.

One (1) Retaining Strap - Velcro for Front Bumper Trough Y___N___
10-12-5980

VELCRO RETAINING STRAP

A two-piece black polypropylene Velcro retaining strap shall be provided for the hose well. It shall be permanently attached to the gravel pan on the front and rear of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops.

One (1) Bumper Extension Not a Step - Sign, FAMA26 No-Step Y___N___
10-12-8010

FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be attached to the top of the gravel pan. The sign reads: "Fall Hazard-Railings NOT provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill".

One (1) Front Tow Eyes - (2) Cut Plate, Painted, Under Pan Y___N___

10-20-0600

FRONT TOW EYES

Two (2) painted "cut plate" type tow eyes shall be furnished. They shall be installed under the aluminum tread plate "gravel" pan, behind bumper, and securely attached to the bumper extension frame. The eyes shall be fabricated of 1" thick steel plate with a 3" diameter opening. They shall be painted to match the frame/undercarriage.

One (1) Rear Tow Loops - (2) Painted, Under Step Y___N___

10-22-0100

REAR TOW LOOPS

Two (2) painted rear tow loops shall be provided, welded to the underside of the rear step subframe. The loops shall be rated at 9000 pounds straight pull. They shall be painted to match the frame/undercarriage.

One (1) Power Steering Installation Y___N___

10-25-0100

STEERING

A heavy duty power steering system shall be provided. The hydraulic pump shall be engine gear driven. The steering gear "box", or fixture that the gear is mounted to, shall be fabricated in the factory of the bidder. It shall be a welded assembly constructed of 3/8" formed steel with a 3/4" face plate. Vertical gussets shall be provided between the face plate and the frame mounting plate to insure against frame flex while the vehicle is stationary.

One (1) Auxiliary Cylinder - Power Steering Y___N___

10-25-1300

AUXILIARY CYLINDER FOR POWER STEERING

An auxiliary power assist cylinder shall be provided in the power steering system.

One (1) Power Steering Cooler : A Hayden 1215 cooler Y___N___

10-25-1399

POWER STEERING COOLER

A Hayden 1215 power steering cooler shall be provided in addition to the power steering reservoir.

One (1) Chassis Alignment Y___N___

10-25-2000

CHASSIS ALIGNMENT

The chassis frame rails shall be cross checked for length and square. Front and rear axles shall be laser aligned. The front axle shall be aligned at the manufacturer's facility.

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One (1) 10-28-0100 — Air System - Chassis, Two Axle — Y___N___

AIR PIPING

The service brake system shall be full air type. The system is to meet or exceed current FMVSS-121 requirements. Other components or accessories shall be as follows:

- Pressure protection valve
- Quick build up system
- Engine mounted, gear driven air compressor
- Bendix Model E-6 dual circuit brake treadle valve
- Two (2) air pressure gauges on cab dash with indicator light and buzzer
- Air reservoirs with capacity to meet FMVSS-121

The Bendix SR-7 valve, in conjunction with the double check valve, shall enable modulation of the spring brakes in the event of a service brake air system failure to allow the vehicle to be stopped.
Brake piping shall consist of SAE approved, DOT rated "Synflex" reinforced colored nylon tubing. The lines shall be wrapped in a heat protective loom where necessary in the chassis. Braided hoses shall provide flexibility between axle and frame connections. Brake air lines shall be color-coded. Air inlet to air brake compressor shall be from the engine intake manifold, i.e. after transition through the engine air cleaner. A flexible stainless steel braided Teflon hose and/or copper tubing shall be provided from the compressor to the air dryer. Fittings shall be brass.

The parking brake system is to be the spring set type operated by control valve on driver's console. A brake indicator light shall also be provided.

One (1) 10-28-0375 — Air System Fittings - Single Axle, Compression — Y___N___

The fittings for the air system shall be compression.

Two (2) 10-28-0410 — Main Air System Drain Valve(s) - Cable Controlled — Y___N___

MAIN AIR SYSTEM DRAIN VALVE(S)

The drain valve(s) on the main air system reservoirs shall be cable controlled. The pull cable shall be extended to the side of the truck with a loop provided at its end. It shall be labeled: Drain Daily.

One (1) 10-28-0600 — Wet Tank — Y___N___

WET TANK

A 1250 cubic inch wet air tank shall be provided with the air system.

One (1) 10-28-0610 Wet Tank Drain Valve - Cable Controlled Y___N___

WET AIR RESERVOIR DRAIN CONTROL

A cable controlled drain valve shall be provided on the wet tank. The pull cable shall be extended to the side of the truck with a loop provided at its end. It shall be labeled: Drain Daily.

One (1) 10-28-2800 Isolated Air Reservoir - 1250 Cubic Inch, (Ea) Y___N___

ADDITIONAL AIR RESERVOIR

One (1) additional 1250 cubic inch air reservoir(s) shall be provided and installed. Each extra reservoir shall be isolated and be plumbed with an 85 PSI pressure protection valve on the reservoir supply side.

One (1) 10-28-290Q Isolated Air Tank Drain Valve(s) - Cable Controlled (Ea) Y___N___

One (1) drain valve(s) on the isolated air reservoirs shall be cable controlled. The pull cable(s) shall be extended to the side of the truck with a loop provided at its end. They shall be labeled: Drain Daily.

One (1) 10-28-2915 Air Reservoir Tank Shall be Used for Air Horn &/or Air Outlet Y___N___

Air reservoir tank shall be used for air horn and/or air outlet.

One (1) 10-28-3120 Emergency Brake - Officer Y___N___

OFFICER'S EMERGENCY BRAKE CONTROL

An additional emergency brake control shall be provided on the right hand side of the cab dash in easy reach of the officer. Control shall actuate the rear axle spring brakes only. In addition, the control shall disable the driver's accelerator pedal and shift the transmission into neutral. Brake control shall be a heavy duty toggle type electrical switch equipped with a spring loaded safety cover to prevent accidental brake engagement. Cover shall be red in color. Control switch shall have an identification label and a warning that it is "For Emergency Use Only". A red LED light shall illuminate when the brake is activated.

One (1) 10-28-3820 Air Dryer - Meritor WABCO System Saver 1200 Y___N___

AIR DRYER

A Meritor WABCO 1200 System Saver air dryer shall be installed in the air brake system. It shall have a minimum capacity of 30 cfm air flow. Dryer shall be equipped with an

integral, automatic, 12 volt heated moisture ejector which is thermostatically controlled. System shall include a pressure controlled check valve installed between the wet tank and the secondary air reservoir.

One (1) 10-28-48SW — Aux Air Outlet - Shutoff Valve, DS Step Well — Y___N___

AUXILIARY AIR OUTLET

There shall be a 1/4" female air outlet with NPT plug mounted towards the front of the driver's side step well. A 1/4 turn shutoff valve shall be located adjacent to the outlet. The outlet shall be connected to the apparatus air reservoir tank.

One (1) 10-28-56SW — Aux Air Inlet - Manual, DS Step Well — Y___N___

AUXILIARY AIR INLET

There shall be an auxiliary air inlet installed on the front of the driver's side step well to maintain the chassis air pressure while the engine is not running. A check valve shall be installed in the line to prevent outflow of air pressure from the "wet" or "supply" tank.

One (1) 11-00-360A — Front Axle - MFS, 20.0K with Disc Brakes & 4" Spring Suspension — Y___N___

FRONT AXLE

A Meritor MFS front axle with a 20,000 pound rating shall be provided. It shall include composite low-friction bushings with diagonal grooves to better distribute lube, camber settings of +1/4 degree for both left and right sides to help improve tire life and a large diameter, heat treated kingpin with a lube retaining seal.

DISC BRAKES

The front axle shall be provided with Meritor #EX225H air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The #EX225H air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical ratio. A visual indicator of brake wear shall also be provided.

FRONT SEMI-ELLIPTICAL SPRING SUSPENSION, 4" X 52"

The front suspension shall be semi-elliptical 4" x 52" constant rate type springs with a military wrapped eye. The correct material, spring length, width, thickness and number shall be provided to match the leaf spring rating with that of the gross axle weight rating of the vehicle.

SHOCK ABSORBERS

Gabriel heavy-duty telescoping shock absorbers shall also be provided on the front axle.

One (1) 91-75-0015 Warranty - Meritor Front Axle, 2 Yr, P&L Y___N___

WARRANTY

Meritor Corporation provides a two (2) year parts and labor warranty on the front axle.

One (1) 91-75-0020 Warranty - Meritor Disc Brakes, 3 Yr, P&L Y___N___

WARRANTY

Meritor Corporation provides a three (3) year parts and labor warranty on the EX225H disc brakes.

One (1) 11-00-9500 Oil Seals - with Viewing Window, Front Axle Y___N___

FRONT AXLE OIL SEALS

The front axle shall be equipped with oil type seals with viewing windows.

One (1) 11-10-0900 Rear Axle - RS-25-160, with EX225H Disc Brakes, 27,000# Y___N___

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 with a capacity of 27,000 pounds at the hub. The rear axle shall be provided with Meritor #EX225H air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The #EX225H air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical seal. A visual indicator of brake wear shall also be provided.

All axles shall be purchased complete from and certified by the axle manufacturer for the specific application. Brake chamber brand and size shall be determined by the axle manufacturer.

One (1) 11-10-9900 Axle Application Certification Y___N___

All axle applications must be certified by the axle manufacturer.

One (1) 11-10-991F Rear Axle Ratio Shall be Determined by Manufacturer to Match NFPA Top Speed Y___N___

REAR AXLE RATIO

The rear axle ratio shall be determined by the manufacturer to match NFPA top speed.

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One (1) 00-05-042F — Vehicle Performance Analysis Report - Provided When Done — Y___N___

VEHICLE PERFORMANCE ANALYSIS

A performance analysis report shall be run on the vehicle, as ordered, using computer software to determine top speed, gradeability, optimum shift points and acceleration on various grades. The report shall be delivered with the completed vehicle.

One (1) 11-10-9999 — Top Road Speed 68 MPH (Not avail Aerials) — Y___N___

ROAD SPEED

The top road speed of the vehicle shall be 68 MPH.

One (1) 11-20-2600 — Anti-Lock Brakes (ABS) - 4-Channel (Not Available on TDA) — Y___N___

ANTI-LOCK BRAKING SYSTEM (ABS)

The vehicle shall be equipped with a WABCO 4S4M anti-lock braking system (ABS). The ABS shall provide four (4) channel anti-lock-up braking control on the (2) front and (2) rear wheels. The system shall employ a digital electronics system with microprocessor controls divided into two (2) diagonal circuits. In the event of one circuit malfunction the second circuit shall operate unaffected. Each wheel shall be constantly monitored by the system when the vehicle is in motion. When any wheel begins to lock-up during braking, a signal shall be transmitted to the processor from the wheel sensor. The control unit shall instantly reduce the braking force applied to the wheel and immediately re-apply braking force so that the wheel rapidly slows without locking. The system shall control all wheels simultaneously to provide maximum vehicle braking in a relatively straight line.

An ABS warning light shall be installed in the warning light panel of the driver's dash.

The ABS system shall automatically disengage the auxiliary braking system whenever the anti-lock braking mode is active.

One (1) 91-75-003A — Warranty - Meritor Anti-Lock Braking System, (ABS), 3 Years/300,000 Miles — Y___N___

WARRANTY

A three (3) year or 300,000 miles parts and labor warranty shall be provided by Meritor WABCO Vehicle Control Systems for the Anti-Lock Braking System (ABS).

One (1) 91-75-0020 — Warranty - Meritor Disc Brakes, 3 Yr, P&L — Y___N___

WARRANTY

Meritor Corporation provides a three (3) year parts and labor warranty on the EX225H disc brakes.

One (1) 91-75-0025 Warranty - Meritor Rear Axle, 2 Yr, P&L Y___N___

WARRANTY

Meritor Corporation provides a two (2) year parts and labor warranty on the rear axle.

One (1) 11-20-2755 Electronic Roll Stability (ESC) - for Single Axle Y___N___

VEHICLE STABILITY COMPLIANCE – ELECTRONIC CONTROL

In compliance with NFPA 1901, current edition standard 4.13.1, the vehicle, as specified, shall be equipped with a Meritor-WABCO electronic Roll Stability Control system that shall utilize a centrally mounted pitch and yaw sensor and steering shaft position sensor interacting with the chassis' ABS traction control, auxiliary braking system and the engine ECM to minimize the vehicle's potential for rollover in a turning at speed maneuver.

One (1) 11-20-2795 Automatic Traction Control w/ Deep Mud & Snow Switch Y___N___

AUTOMATIC TRACTION CONTROL WITH DEEP SNOW AND MUD SWITCH

Automatic Traction Control, working in concert with the ABS system, shall be provided which shall reduce wheel slip on acceleration on wet or slippery road conditions. A light shall illuminate on the driver's dash when the drive wheels slip during acceleration.

A deep snow and mud option switch shall be provided in addition to the ATC option. This function increases available traction on extra soft surfaces like snow, mud or gravel by slightly increasing the permissible wheel spin.

One (1) 11-20-4100 Driver Controlled Diff. Lock (DCDL) - Single Y___N___

DRIVER CONTROLLED DIFFERENTIAL LOCK

The drive axle shall be equipped with an air actuated supplemental traction device that locks the differential case gears and axle shafts via the clutch collar, maximizing traction and control to both right and left side wheel sets, in low speed operation. The lock position shall also protect against spin out damage to the differential. A dash mounted locking rocker switch, to prevent accidental activation, with an indicator "on" light shall engage and disengage the lock.

It is understood that the DCDL is a short time period traction enhancement and should only be engaged when very slippery road surface conditions exist and at speeds under 25 mph.

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One (1) 11-20-5000 — Automatic Snow Chains - Onspot — Y___N___

ONSPOT AUTOMATIC SNOW CHAINS

Onspot automatic snow chains shall be provided in front of the rear axle of the vehicle. An electric locking rocker switch shall be mounted in the cab to provide 12 volts to an air solenoid mounted on the vehicles frame. Compressed air to the solenoid from the vehicle's onboard air system shall activate the chains. When the chains are deactivated, the solenoid exhausts the air provided to the chain units and self-contained return springs bring the chain wheels back to their nested position.

The On-Spot system shall have the "Brass Cap" option. The onspot system shall be wired on its own electric circuit.

One (1) 11-30-1200 — Suspension - Air Ride, Neway ADZ-124, Single, 24,000# — Y___N___

SUSPENSION

A Neway ADZ-124 heavy duty 24,000 lb capacity air ride suspension shall be used. The assembly utilizes air springs and a parallelogram framework design that reduces drive line wear and vibration while maintaining a constant pinion angle. The air ride offers a smoother ride with less stress on truck components. It eliminates tire hopping and helps provide superior traction to the wheels.

Two (2) 12-18-0020 — Front Tires - Continental /315/80R22.5/Conti HAU 3 WT,10,000# (Ea) — Y___N___

FRONT TIRES

The two (2) front tires shall be Continental 315/80R22.5, Conti HAU 3 WT load range "L", with a nominal rating of 10,000 pounds at a top speed of 68 mph.

Four (4) 12-19-0022 — Rear Tires - Continental/12R22.5/HDR2+, 6,780# (Ea) — Y___N___

REAR TIRES

The four (4) rear tires shall be Continental 12R22.5, HDR2+, load range "H", with a nominal rating of 6,780 pounds at a top speed of 75 mph.

One (1) 12-50-0700 — Wheels - Aluminum Disc, Durabrite, on Single Rear Axle — Y___N___

WHEELS

Wheels shall be Alcoa aluminum disc type and hub piloted. The wheels shall be coated with Durabrite. Chrome plated nut covers shall be furnished.

One (1) — Tire Pressure Indicators - Accu-Pressure H.D. Safety Caps, Single Axle — Y___N___

Fire & Specialty Equipment Company

12-90-1010

TIRE PRESSURE INDICATORS

Tires shall have non-pressure indicators installed for shipment.

Accu-Pressure Heavy Duty Safety Caps shall be provided and shipped loose. This valve stem inflation pressure sensitive monitor shall provide a visual color indication of when the tire pressure is below the manufacturers recommended level. The chrome safety cap shall show green when the tire is properly inflated and red once the tire becomes under inflated.

All inner wheels shall be equipped with a valve stem extension that shall allow the inner wheel to be filled without removing the outer wheel.

Three (3) Tire Balance - Equal, Front Tires Only Y___N___

12-90-1210

TIRE BALANCE

EQUAL Tire Performance Balancing Compound shall be inserted into the front tires to balance and maintain a vibration-free rotation.

Balance Beads shall be installed in all wheels/tires.

One (1) Engine - Cummins L9, 450 HP, for Single Axle, EPA21/OBD21 Certified Y___N___

13-00-5210

ENGINE

The chassis shall be powered by an EPA21/OBD21 certified and compliant Cummins L9-450 diesel engine as described below:

- Model L9

• Number of Cylinders	Six
• Bore and Stroke	4.49 x 5.69
• Displacement Liter (Cu. In.)	8.9 (543)
• Rated BHP	450 @ 2100 RPM
• Torque	1250 lb-ft @ 1400 RPM
• Governed RPM	2200
• Oil Capacity / Type	6.5 gallons / SAE CK-4
• Fuel Requirement	Ultra Low sulfur diesel (15 ppm max.)

Standard equipment on the engine shall include the following:

- Selective Catalytic Reduction (SCR) after treatment
- Cooled Exhaust Gas Recirculation system
- Fan – 29”, 11 blade
- Charge air cooling

- High pressure, common rail fuel system
- Fuel filter
- Fuel strainer
- Governor – electronic, interact system
- Injectors – electronically controlled full authority injection
- Lube oil cooler – integral
- Lube oil filter – full flow
- Turbocharger – variable geometry type
- Cummins Acumen Module

The engine exhaust system shall be a horizontal design constructed from heavy-duty truck components. Flexible couplings shall be utilized to absorb the torque and vibration of the engine. The outlet shall be directed to the forward side of the rear wheels, exiting the right side, with a straight tip. A heat-absorbing sleeve shall be used on the exhaust pipe in the engine compartment area to reduce stored heat, providing protection for the alternator, and also to protect hands when checking or adding oil in the engine compartment.

ENGINE AND CHARGED AIR COOLING SYSTEMS

A serpentine core type radiator with continuous louvered copper fin design shall be provided. The radiator shall be fitted with formed steel side frames. The top tank shall have a built-in de-aeration system. A drain shall be located at the lowest point.

The engine charged air heat exchanger shall be located directly in front of the radiator and be bolted to its side rails. It shall be all aluminum-brazed construction. Air cooler shall be the cross flow design with cast aluminum side tanks, horizontal inlet and outlet at top and louvered serpentine design, aluminum external air fins. Plastic tanks shall not be acceptable, no exceptions. Cooler tubes shall also be constructed of aluminum and shall have internal fins that eliminate laminar air flow.

The charge air cooler and the radiator shall be produced by the same manufacturer as a single assembly to provide continuity throughout the cooling system. This shall ensure a certified “balanced” package for the chassis engine air and fluid cooling systems.

The radiator charge cooler shall be mounted to the chassis front frame stub and the fabricated mounting brackets for the fan ring shall be attached to the front of the engine in a manner so that it “floats” with the engine and increases the fan’s efficiency by minimizing the fan tip clearance while preventing torque contact between fan and ring. This mounting design eliminates engine fan and radiator shroud contact due to engine torque movement and promotes more efficient airflow. The radiator / charge air cooler package shall be held in place at the bottom by two (2) large bolts equipped with anti-stress rubber biscuits. The top of the radiator shall be supported by two (2), ¾” tubular braces, bolted to the front frame stub. Anti-vibration rubber biscuits shall be installed at the top threaded end of the braces where they attach to the radiator.

One (1) Engine Cooling Certification Y___N___

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13-00-7000

ENGINE COOLING CERTIFICATION

"EPQ" (End Product Questionnaire) certification shall be provided by the chassis manufacturer. Certification shall be documented with reference to each specific chassis model by the chassis manufacturer.

One (1) Fan Clutch for L9 Engine Y___N___

13-00-7500

FAN CLUTCH

A viscous style thermostatically controlled, clutch shall be provided for the engine cooling fan. The clutch shall be of a failsafe design, in that it shall fail in the "on" mode and thus prevent overheating. Manufacturer shall also wire the clutch so that it remains "on" in the pumping mode to prevent water pressure fluctuations.

One (1) Transmission - Allison, 3000-EVS Y___N___

13-03-0400

TRANSMISSION

An Allison, Model 3000 - EVS, electronically controlled automatic transmission with integral fluid filter shall be provided. A transmission cooler shall be installed in the radiator bottom tank. A warning light and buzzer shall be provided on the cab dash to alert the driver should the transmission overheat.

The transmission shall include the following: an oil life monitor, a filter life monitor, and a transmission health monitor. The oil life monitor determines fluid life remaining by monitoring various operating parameters. The filter life monitor determines when fluid filter(s) need to be replaced. The transmission health monitor determines when clutch system inspection is required. The monitors send a message via a blink code to a special prognostic light on the shift pad. Also on the shift pad shall be installed a digital, double-digit display that identifies the level of transmission oil. The display shall identify the oil level as “Ok”, “Lo” or “Hi”, also indicating the number of quarts lo or hi.

The transmission shall include the following emergency vehicle specifications:

- Maximum gross input power: 450 hp
- Maximum gross input torque: 1250 ft.lb.
- Input speed range: 2000 to 2800 rpm
- Direct gear lock-up: 4th @ 1.00 to 1.00
- Overdrive gear and ratio: 5th @ 0.75 to 1.00

Gear ratios shall be as follows:

- 1st 3.49 to 1

- 2nd 1.86 to 1
- 3rd 1.41 to 1
- 4th 1.00 to 1
- 5th 0.75 to 1
- 6th 0.65 to 1
- Rev -5.03 to 1

The transmission shall automatically shift into neutral whenever the chassis parking brake is applied.

One (1) 13-03-2010 Transmission Fluid - Synthetic SAE Standard Transynd for 3000-EVS Y___N___

TRANSMISSION FLUID

The Allison 3000-EVS transmission shall be delivered from the factory with a synthetic SAE standard ATF, Transynd.

One (1) 13-03-3000 Transmission Programming - 5th On Mode Y___N___

TRANSMISSION PROGRAMMING

The transmission shall be programmed as a 5-speed with 5th gear (overdrive) selected by mode button only.

One (1) 13-03-4000 Transmission Shift Control - Allison Touch Pad Y___N___

TOUCH PAD TRANSMISSION SHIFT CONTROL

Touch pad control shift module shall be mounted to the right of the driver on the console and be indirect lighted for after dark operation.

One (1) 91-75-0065 Warranty - Allison Transmission, 5 Yr, P & L Y___N___

WARRANTY

Allison provides a 5 year warranty on the EVS transmissions. See warranty certificate for complete details.

One (1) 13-05-0110 Driveline - Spicer 1710, for Single Axle, Wheelbase < 190.5" Y___N___

DRIVELINE

Drivelines shall be built with heavy-duty metal tubes and utilize Spicer 1710 series or "Equal" mechanics type universal joints with "half round" end yokes. This quick disconnect strap and bolt design type end joint shall allow the driveline to be easily

disassembled and dropped straight down for ease of service and maintenance. They also shall be dynamically balanced by the truck manufacturer before installation in the chassis. A splined slip joint shall be provided in each shaft assembly. A grease zerk shall be provided for lubrication of the slip joint.

One (1) Fuel Water Separator with Alarm - Fleetguard, L9 Engine Only Y___N___
13-08-5620

FUEL WATER SEPARATOR WITH ALARM

A Fleetguard filter with fuel water separator and water sensor alarm, as provided by the engine manufacturer, shall be mounted in a serviceable and accessible location, that the cab may need to be tilted for.

One (1) Engine Starter - Denso, 12 Volt Y___N___
13-09-0010

ENGINE STARTER

A Denso, 12 volt, 5.0 kW gear reduction starter shall be installed.

One (1) Air Compressor - Wabco 18.7 cfm Y___N___
13-11-0400

AIR COMPRESSOR

A Wabco 18.7 cfm air compressor shall be furnished. The air compressor shall be gear driven off the engine.

One (1) Exhaust - Single Module, DPF/SCR, Outboard of Frame Rail, L9 Engine Only Y___N___
13-13-0005

EXHAUST

A single exhaust module containing an SCR chamber and a DPF chamber shall be installed on the right side of the vehicle, immediately behind the cab. The exhaust module shall ingest urea from a remote storage tank to remove NOx from the exhaust. The exhaust assembly shall be mounted outboard of the frame rail.

One (1) Tailpipe - Plymovent, Extended for Exhaust Evacuation System Y___N___
13-13-0900

TAILPIPE EXTENSION

The tailpipe shall be provided to accommodate a Plymovent exhaust evacuation system. The tailpipe shall be mounted perpendicular to the side of the truck and be flush with the body. 12" of clearance between the pipe and the tire will be provided. The tailpipe mounting shall be straight out from the body.

It is understood that the engine exhausts can not be connected to exhaust evacuation systems when the Diesel Oxidation Catalyst and Diesel Particulate Filter on the engine are

regenerating.

The diameter of the pipe shall be 6" . There shall be a clearance of 4" completely around pipe once past the side of the body.

One (1) 13-15-1500 — Engine Brake - Jacobs with Telma Focal Retarder on Cummins L9 Engine — Y___N___

ENGINE BRAKE

A Jacobs engine brake shall be installed with controls within easy reach of the driver. The brake shall automatically be actuated when the accelerator pedal is released and shall be wired in conjunction with the rear brake lights so that they are activated when the engine brake is engaged. It shall have a two-position switch; "Low" and "High" in addition to a manual "On/Off" switch.

TELMA FOCAL RETARDER

A Telma Focal retarder shall be installed in the drive line to provide an auxiliary braking device for the vehicle. Telma application shall be achieved by depressing the brake pedal. There shall also be a four lamp indicator system to indicate the progressive stages of vehicle retardation. A momentary on/off switch with indicator light defaults on, resetting with the battery switch. The retarder shall be reset with the ignition or by pressing the switch a second time. The Telma relay box shall be mounted at the manufacturer's discretion in an easily accessible location for service.

One (1) 13-15-159A — Telma Operation - All Stages off Brake — Y___N___

The Telma operation shall be all stages off brake.

One (1) 91-75-0085 — Warranty - Telma Standard — Y___N___

WARRANTY

Telma warrants to customers that the product shall be free from defects in materials and workmanship and will confirm to applicable specifications. TRI shall, at its option, repair correct or replace any product or part thereof which is defective in workmanship of material: provided, however, that TRI is given prompt written notice of any failure (setting forth the alleged defect and pertinent delivery dates showing that the product is covered under the warranty) occurring within the lesser of a) two (2) years after the date of delivery to the first user of OEM product into which the product is installed of b) thirty (30) months from original delivery of the product.

Please see the attached Telma Warranty document for complete details.

One (1) 91-75-004D — Warranty - Cummins L9 Engine, 5 Year/100,000 Mile — Y___N___

WARRANTY

Cummins provides a 5 year or 100,000 mile warranty on the L9 engine. See Cummins Warranty Certificate for complete details of terms, conditions and deductibles.

One (1) Coolant Overflow Reservoir - 6 QT, Attacker/Capitol Y___N___
13-00-760S

COOLANT OVERFLOW RESERVOIR

A six (6) quart coolant overflow reservoir shall be provided. It shall be accessed in the officer's step well. A hinged aluminum tread plate door with small D-ring handle shall be provided for access. A visual inspection shall be possible without tilting the cab (NO EXCEPTIONS). The aluminum tread plate door shall be properly labeled.

One (1) Silicone Hoses - Coolant/Heater Y___N___
13-01-2100

SILICONE HOSES

All hoses in the cooling system shall be silicone type with stainless steel constant torque Oetiker clamps.

One (1) Skid Plate - Painted To Match Frame Rails Y___N___
13-01-2400

SKID PLATE

A radiator skid plate shall be provided to protect the radiator from debris. The skid plate shall cover the lower radiator tank and shall be painted to match the frame rails.

One (1) Fuel Tank - 65 Gallon, S/S, Rear Mount, with S/S Straps Y___N___
13-08-2700

FUEL SYSTEM

The vehicle shall be furnished with a 65 gallon fuel tank mounted behind the rear axle and just below the frame rails using a stainless steel strap. The tank shall be constructed of stainless steel and equipped with a swash partition and vent. The fuel tank shall meet all FHWA requirements including a fill capacity of 95% of tank volume and all DOT and FMVSS regulations for rollover protection. A 2" diameter fill inlet shall be provided. Fuel cap shall be of brass or bronze construction, non-vented and have lead safety fuses. It shall be chained to inlet tube or to the body sheet metal to prevent loss. Braided hoses shall be provided for the fuel lines. A 1/2" NPT drain plug shall be located at the bottom of the tank. The tank shall be installed using stainless steel straps and hardware, separated from the tank by a rubber insulating strip to prevent against chaffing. On trucks without torque boxes, the fuel tank pickup tube and sending unit shall be accessible without having to remove the tank.

The stainless steel fuel fill inlet shall be located on the left (drivers) side of the apparatus.

It shall be concealed behind a door. The inside of the door shall be marked "ULTRA LOW SULFUR DIESEL FUEL ONLY". The fuel inlet area, recessed behind the door, shall be completely enclosed to prevent dirt and debris from entering. Provision shall be provided inside the fill recess for drainage of any spilled fuel within the cavity.

One (1) 13-08-3060 Fuel Fill Door - S/S, Brushed, Side Hinged (NA TDA) Y___N___

The fuel door shall be constructed of stainless steel and shall have a brushed finish. It shall be hinged along the vertical side towards the front. A magnet shall hold the door in the closed position. The door shall be kinked along 3 edges with the fourth side being used as s finger grab for opening and closing it. A stainless steel trim ring shall encircle the opening to prevent the fuel nozzle from damaging the surrounding surface when it is opened. The fuel shelf shall be made from a high impact polyethylene material.

One (1) 13-08-5100 Shutoff Valve - Fuel Line Y___N___

FUEL LINE SHUTOFF VALVE

A fuel line shutoff valve shall be provided to prevent fuel from draining back while changing fuel filters.

One (1) 13-08-5108 Fuel Line Shutoff Valve Location - Near Fuel Water Separator, Input Side Y___N___

The fuel line shutoff valve shall be located near the fuel water separator on the input side.

One (1) 13-08-5400 Fuel Cooler - Engine, Water Pump Present Y___N___

ENGINE FUEL COOLER

An engine fuel cooler shall be provided on the apparatus. The engine fuel cooler shall cool the returning fuel from the engine using the water from the water pump.

One (1) 13-10-2500 Alternator - Delco, 430 Amp, Model 55SI Y___N___

ALTERNATOR

A 430 amp Delco alternator, model 55SI, shall be provided.

One (1) 13-12-0510 Air Cleaner - Racor Ecolite®, Attacker/Capitol Y___N___

AIR CLEANER

A Racor Ecolite® dry type engine air cleaner shall be provided. It shall be installed in a location above the chassis frame rails and no less than 40" above the ground. A visual inspection shall be possible without tilting the cab (No Exceptions). The air cleaner shall be serviceable through an access opening of no less than 30" wide by 13" high.

One (1) 13-12-5500 Air Restrict Indicator - Information Display Center Y___N___

AIR RESTRICTION INDICATOR IN INFORMATION DISPLAY CENTER

An electrical engine air restriction indicator shall be provided and installed in the cab information display center.

One (1) 13-13-0030 DPF Regeneration Process Y___N___

DPF REGENERATION PROCESS

NFPA 12.2.6.7.1 The regeneration process shall be activated by two methods:

- Automatically by the engine system but only when the transmission is in gear and the speedometer indicates a speed above 5 mph (8km/hr) whether the apparatus is in motion or is operating in stationary pump mode with an engine rpm sufficient to register 5 mph (8 km/hr) on the speedometer.

- Manually when initiated by activation of a switch located in the driver's area of the driving compartment.

There shall also be an inhibit switch placed near the driver to inhibit an automatic reburn.

One (1) 13-13-0055 Diesel Exhaust Fluid (DEF) & DEF Access, Attacker/Capitol Y___N___

DEF & DEF ACCESS

The urea mixture, a solution of 2/3 water and 1/3 urea which reacts with NOx to create nitrogen and water, shall be stored in a 10 gallon tank equipped with a level sensor and alarm to prevent run-out.

The filling or adding of DEF to the DEF tank shall be available without tilting the cab (No Exceptions). Access to the urea tank fill connections and level sensor shall be available without tilting the cab.

One (1) 13-13-0059 DEF Fill Access Door - ATP, Capitol Y___N___

DEF FILL ACCESS DOOR

An aluminum tread plate hinged door shall be provided for access to the DEF fill cap and neck. The DEF fill access shall be located on the left hand side of the cab, under the crew cab floor behind the crew cab step well battery access hinged door. The DEF fill access area shall contain a fill neck.

One (1) 13-13-005Z Diverter Plate Y___N___

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DIVERTER PLATE

A diverter plate to the forward top side of the DEF tank bracket to direct the driver's mudflap away from the DEF tank bracket when lowering the cab.--ref SO 78L02

One (1) Exhaust Heat Shielding Y___N___
13-13-1130

EXHAUST HEAT SHIELDS

Heat shields shall be provided as needed to prevent damage to body and wiring from excessive exhaust temperatures. The exhaust pipe shall be wrapped in multi-layered insulation blankets, from just aft of the turbo down to inlet side of the DPF. Each blanket shall have a fiberglass inner layer and a silicone impregnated fiberglass cloth outer layer

The cab shall receive 1.25" thick foil back insulation blanket under the crew floor to reduce floor temperatures.

All harnesses and cables, in proximity to exhaust system components, shall be protected with insulation.

One (1) Fast Idle - Switched on Dash Y___N___
13-15-4100

FAST IDLE SWITCH

A fast idle switch shall activate an engine high idle. The circuit shall be wired through the neutral safety/parking brake interlock to prevent activation when the transmission is in the road mode. Fast idle shall be set at 1000 RPM's. A switch located inside the cab convenient to the driver shall be provided for this system.

One (1) Nameplate- Lubrication Capacity, On Driver's Door, Interior Face Y___N___
13-15-5010

LUBRICATION NAMEPLATE

A nameplate shall be installed that specifies the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump priming system fluid, if applicable
- Drive axle(s) lubrication fluid
- Air condition refrigerant
- Air conditioning lubrication fluid
- Power steering fluid
- Cab tilt mechanism fluid

- Transfer case fluid
- Fuel
- Diesel Exhaust Fluid
- Windshield Washer Fluid
- Auto Lubrication System lubricant, if applicable
- Equipment rack fluid, if applicable
- Foam system lubricant, if applicable
- Generator system lubricant, if applicable
- Aerial Hydraulic Fluid, if applicable
- Front tire size and cold pressure
- Inter tire size and cold pressure, if applicable
- Rear tire size and cold pressure
- Trailer tire size and cold pressure, if applicable
- Maximum tire speed ratings
- Ambient operating temperature
- Paint colors and codes

A layer of Velvet Polycarbonate shall overlay the lettering to protect it. The lubrication nameplate shall be installed on the interior face of the driver's door, near the hinge and below the window controls.

One (1) 20-00-550A Cab - S/S, Full Tilting, 136" Capitol Y___N___

STAINLESS STEEL FULL TILTING CAPITOL CAB

The cab shall be designed specifically for the fire service and shall provide roll cage strength and safety. The cab shall be made in the factory of the bidder and must be the bidder's top-of-the-line stainless steel model. The cab shall be of the open interior design. The entire cab shall tilt forward 45 degrees for engine access. In order to provide the strongest, safest cab design possible, no extrusions shall be used in the construction of the cab structure. No plastic or fiberglass shall be used in the construction of the cab sub-frame, floor assembly, front assembly, side assemblies, back wall assemblies or roof assembly.

FRONT CAB DIMENSIONS

The front face of the forward cab shall measure 68" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96".

CREW CAB DIMENSIONS

The back wall of the cab shall measure 68" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96".

CAB MOUNTING

A four point mounting system shall be provided. The mounting system shall consist of two (2) front pivot mounts fabricated of steel and two (2) rearward lock plates attached to the rear cab sub-structure. Each front pivot mount shall consist of a greaseless pin and a multi-layered, self-lubricating, composite bearing. The outer layer of the bearing shall be high-durometer rubber to isolate road vibrations and shock. Each rear lock plate assembly shall consist of two hydraulic actuated locks isolated from the chassis by center bonded rubber mounts.

SUB-FRAME

The sub-frame shall be stainless steel reinforced welded safety-cage construction utilizing a 3" x 4" rectangular structural steel tube sub-frame. All joints shall have continuous welds; stitch welding shall not acceptable. The sub-frame shall be designed as a one-piece structure from the front to the back of the cab. It shall be used to support the cab while tilting, join front pivots to the cab locks, and to join the cab to the chassis. Pocketing of the sub-frame shall not be acceptable.

FRONT ASSEMBLY

The safety-cage section at the front of the cab shall be constructed of 1.25" stainless steel tubing and shall join the front door posts together with the main sub-frame. There shall be a 2.50" x 1.50" x .25" heavy wall lower cross tube that joins the cab sills together to prevent cab twisting when tilting the cab. The front fire walls shall be set back from the front assembly structure to provide added protection in a frontal crash. The outer cab skin shall not be an integral structural member, although it shall help stiffen the cab front face.

The front cab door hinge mount (aka "A" pillar) shall be a 2" x 2" tube with a .19" thick wall.

CAB FLOORS

All floor components shall be welded directly to the sub-frame. The floor shall be constructed of 50,000 psi stainless steel. Cab floors shall be covered with a sound barrier mat with a heavy-duty wear surface.

SIDE WALL ASSEMBLIES

The safety-cage on the sides shall be constructed of 1.25" stainless steel tubing. Both side wall assemblies shall be joined to the sub-frame via thick tubular structures, using heavy fillet welds. This shall strengthen the walls to withstand high roof loading. The side wall outer skins shall be integral with the cab structure as well as additional formed components to help stiffen side wall assemblies. There shall be 1.25" of insulating foam between the exterior and interior side walls. The structure shall be reinforced for cab entry grab handle mountings.

The rear cab door hinge mount (aka “C” pillar) shall be equivalent to a 2.5mm formed channel with .19” thick tapping bar.

ROOF ASSEMBLY

The 1.25” stainless steel tubing used in the construction of the roof section of the safety-cage shall support 2 psi of loading across the whole roof. The fabricated and welded roof sills and front header shall be made of 50,000 psi stainless steel material. The corner caps shall utilize spun metal technology thus retaining the metal’s strength while producing a very rigid corner joint. The side roof covering (rolled edges) shall be constructed of stainless steel formed in a quarter round. It shall form a hollow double wall, angle reinforced roof edge with an integral drip rail. The roof top outer wall shall not be an integral structural member, although it shall stiffen the roof. There shall be 1.25” of insulating foam between the exterior roof and interior ceiling.

BACK WALL ASSEMBLY

The safety-cage on the back wall shall be constructed of 1.25” stainless steel tubing. It shall join the roof to the floor assembly. Construction of the back wall assembly shall utilize a minimum of 2.5mm 3CR12 material and the design shall provide crush protection in the event of a rollover. The back wall structure shall be uniform, regardless of the seating choices. All seat mounts and seatbelt mounts shall use weld nuts to eliminate pullouts and stripped threads. The outer skin shall not be an integral structural member, although it shall stiffen the back wall. 1.25" of insulating foam shall be located between the exterior and interior back walls.

One (1) 20-00-821C — Cab Entrance Doors - (4) Barrier Style, Capitol — Y___N___

CAB DOOR CONSTRUCTION - BARRIER CLEARING

The four (4) forward and crew cab doors shall be barrier clearing and fabricated from stainless steel (No exceptions). The forward and crew cab doors shall be 34.5” wide. The interior and exterior door handles to be flush mounted paddle style with a Trimark TM202 keyed lock incorporated in the exterior handle and lever control lock incorporated in the interior handle. One (1) key per door shall be provided. The crew cab doors shall not include a taper and maintain full width from top to bottom for maximum crew entry and exit access.

The door check straps shall be six (6) inch wide 9800 lb woven nylon strap with sewn integral steel reinforcement bars for attachment to cab and cab door. The door's latch locking mechanism shall make it impossible to lock oneself out of the cab unless locked with the supplied key. The door rotary latch mechanisms latch linkage shall be accessible through an access panel integral to the interior door panel. Doors shall be hung on stainless steel full length hinges attached to cab and door with .25" bolts. The hinges for each door

shall be of one-piece 304-2B stainless steel construction with stainless steel pins and 0.090 gauge leaves with 2" joints and a 3" width opening. Doors shall meet Federal Motor Vehicle Safety Standard #206. The doors shall be designed so as to allow the tempered laminate windows to roll completely down.

Entrance step wells to the driver's and officer's positions shall be a minimum of 26" wide. Entrance step wells to the crew cab positions shall be a minimum of 34" wide. Entrance steps shall be made of stainless steel grating.

One (1) 20-00-8425 Front Door Opening - Approximately 90 Degrees (NA with Aerialscope) Y___N___

The front cab doors shall open approximately 90 degrees.

One (1) 20-00-8450 Rear Crew Door Opening - Approximately 90 Degrees Y___N___

The rear crew cab doors shall open approximately 90 degrees.

One (1) 20-50-501B Inner Cab Door Panels - Black LINE-X® (4) Y___N___

INNER DOOR PANELS – BLACK LINE-X® (4)

The upper inside bolt-on panel on each cab door shall be removable and shall be constructed of aluminum covered with black LINE-X®.

One (1) 20-50-6010 Reflective Stop Signs - (4) Inner Cab Door Panels Y___N___

STOP SIGNS

A reflective stop sign shall be provided on the interior lower portion of the four (4) cab doors in place of the required NFPA reflective chevron.

One (1) 20-00-850C Cab Tilt Mechanism - S/S, Full Tilt, Capitol Y___N___

CAB TILT

The cab shall tilt a minimum of 45 degrees for normal servicing of the engine and other equipment. The tilt cab locking system shall be a two-point type that locks automatically when the cab is lowered into its nested position. The cab tilt package is custom designed for safety and ease of vehicle maintenance. The hydraulic tilting system consists of two (2) heavy-duty single acting cylinders. The power supply is a high efficiency electric over hydraulic system with an integral mechanical override in case of battery failure. All components and parts are designed for installation with a minimum of 3 to 1 safety factor based on current S.A.E. standards.

In addition to the velocity fuses, a secondary safety system shall be provided to hold cab in the fully raised position in the event of a failure in the primary lift mechanism. It shall

consist of a metal channel device, which automatically drops over the extended rod of the right side hydraulic lift cylinder thereby preventing its retraction. The safety channel can only be released through an overt action made by the operator such as pulling a lever or cable from the right side of the apparatus, near the safety channel. Automatic release of the safety system shall not be acceptable.

There shall be a small compartment under the officer's side, rear facing seat area. The compartment door opens rearward into the crew area. Stored in this compartment is the "manual tilt bar", in clips. The manual tilt bar actuates the manual hydraulic pump to tilt the cab.

The cab tilt system shall be remotely controlled utilizing a cable with a hand held push button device. The cable shall be of sufficient length so as to be able to see both sides of the cab.

If barrier doors are selected, then the cab tilt control shall be located, stored, and tethered directly to a compartment beneath the officer side floor, forward step well area. The compartment shall have a hinged door with a latch. The door shall have the same finish as the surrounding step well area.

If full length doors are selected, then a port shall be provided on the side of the cab forward of the officer's door hinge and the control/whip shall be removable. The tilt controller and cable shall be stored in a small compartment under the officer's side, rear facing seat area, next to the manual tilt bar.

One (1) 20-25-4700 Cab Floor - Forward Cab, Pebble Finish Matting, Attacker/Capitol Y___N___

FORWARD CAB FLOOR

The forward cab floors shall be covered with a black mat that functions as a sound dampening barrier. The mat shall have a pebble textured heavy-duty wear surface and be laminated to a foam underlay. The mat shall be composed of a vinyl-nitrile blend, which is the base material used in IV tubes and blood bags; it is not affected by blood or other body fluids.

One (1) 20-25-482A Cab Floor - 68"/74" Crew Cab, Pebble Finish Matting, Attacker/Capitol Y___N___

CREW CAB FLOOR

The crew cab floors shall be covered with a black mat that functions as a sound dampening barrier. The mat shall have a pebble textured heavy-duty wear surface and be laminated to a foam underlay. The mat shall be composed of a vinyl-nitrile blend, which is the base material used in IV tubes and blood bags; it is not affected by blood or other body fluids.

One (1) Rear Cab Wall Exterior Finish - Full ATP Y___N___

Fire & Specialty Equipment Company

20-00-68B1

ATP OVERLAY ON BACK OF CAB

An aluminum tread plate overlay shall be provided over the entire exterior rear wall of the cab.

One (1) 20-00-6910 — Cab Grille - Front, Raised Bezel Surround, Vertical Bars — Y___N___

CAB GRILLE - VERTICAL BARS AND RAISED BEZEL SURROUND

The cab front opening shall be covered with a custom made stainless steel grille that shall be fabricated in the bidder's factory. The grille shall have formed vertical bars spaced apart on 2" centers. The upper stainless steel grille shall have a matching lower counterpart to further facilitate engine cooling. The two (2) stainless grilles shall be housed in a custom, raised bezel.

One (1) 20-00-6920 — Front Grille & Raised Surrounds - Polished, Chrome Finish — Y___N___

Both the upper and lower front, center raised surround bezels and the two (2) grilles shall have a polished chrome finish.

One (1) 20-00-698A — Upper Raised Bezel Surrounds, with Panels, (2) — Y___N___

UPPER RAISED BEZEL SURROUNDS, WITH PANELS

A custom raised bezel shall be installed on the front face of the cab, on each side of the front grille. Housed within each bezel shall be a removable panel, painted job color. The removable panel shall provide service access to the forward side, firewall mounted electrical connections and wiring harness.

One (1) 20-00-698K — Upper Raised Headlight Bezel Surrounds - Chrome Finish — Y___N___

The upper raised headlight bezel surrounds shall have a bright chrome finish.

One (1) 20-00-SR10 — *Front Grille Script Nameplate - Mirror Finish,for Grille w/Raised Bezel Surround* — *Y___N___*

FRONT GRILLE SCRIPT NAMEPLATE

A "Seagrave" nameplate, fabricated from AISI 304 stainless steel, with mirror finish, shall be located on the lower front engine cooling intake grille of the cab.

One (1) 20-00-69MX — Engine Air Inlet Grille & Ember Separator, Attacker/Capitol — Y___N___

ENGINE AIR INTAKE GRILLE WITH WATER/EMBER SEPARATOR

A stainless steel removable grille for engine air intake shall be provided. The air intake grille shall contain the replaceable water and ember separator filter in an integral housing.

The air intake grille and water/ember separator cartridge shall be located on the side of the cab, above and to the rear of the driver's side steer axle. The engine air intake grill shall be no less than 60" above the ground.

One (1) 20-00-69NA — Engine Air Inlet Grille- Polished Finish — Y___N___

The cab side engine air inlet grille shall have a highly polished finish.

One (1) 20-00-741S — Cab Roof - S/S, Flat, Attacker/Capitol — Y___N___

FLAT ROOF

A flat roof shall be provided with an interior floor to ceiling height of 59".

One (1) 20-00-78A1 — Exterior Cab Roof Finish - Paint — Y___N___

PAINTED CAB ROOF

The exterior surface of the cab roof shall be painted in compliance with the cab paint specifications detailed elsewhere in this specification document.

One (1) 20-00-9100 — Step - Auxiliary Cab, Entrance, Under Each Door, Below Cab — Y___N___

AUXILIARY ENTRANCE STEPS

Auxiliary cab entrance steps shall be provided at each cab door opening, below the cab, to reduce the cab entrance step height by approximately 9.5 inches.

One (1) 20-00-910X — Four (4) Folding steps in cab stepwell — Y___N___

FOLDING STEPS IN CAB STEPWELLS

Each (1) one of the cab stepwells shall incoporate a folding step

Fire & Specialty Equipment Company

One (1) 20-00-951C — Doors - (2) Cab, B to C Pillar Side Access, 27" High, Capitol — Y___N___

CAB SIDE ACCESS DOOR

Two (2) stainless steel cab side access doors shall be provided on the cab, one each side, to the rear of the front cab entrance doors. Door openings shall be approximately 13.00" wide x 27.00” high. The doors shall fit flush with the exterior skin of the cab and be hung on 304 stainless steel full length hinges attached to the cab and door by 0.25” bolts. The doors shall open a minimum of 90 degrees.

One (1) 20-00-960A — Cab Side Access Doors Hinged at Front Edge — Y___N___

The cab side access doors shall be vertically hinged at the front edge.

One (1) 20-00-960F — Cab Side Access Door Stays- (2) Chain Style — Y___N___

The doors shall each have a chain style door stay.

One (1) 20-00-960P — Cab Side Access Door Latch Position - Lower Part of Door — Y___N___

The "D" handle type latches shall be provided on the lower part of the door.

One (1) 20-00-961L — Keyed Locks for (2) Cab Side Access Doors (#1250 Keys) — Y___N___

KEYED LOCKS

There shall be keyed locks for both the cab side access doors. The driver's side and officer's side access doors shall be keyed alike with #1250 keys.

One (1) 20-00-966B — Lower Inner Flange Protectors - (2) Cab Side Access Door, Brushed S/S — Y___N___

CAB SIDE ACCESS DOOR LOWER INNER FLANGE PROTECTORS

Brushed stainless steel lower inner flange protectors, approximately .50" wide, shall be provided on the cab side access door to protect the painted finish.

One (1) 20-00-966L — Scuff Plates - (2) Cab Side Access Inner Door Frame, S/S, Brushed — Y___N___

CAB SIDE ACCESS INNER DOOR FRAME SCUFF PLATES

A brushed stainless steel scuff plate shall be installed on the striker side of each cab side access inner door frame and shall run the full height of the door opening. The scuff plate shall be a single bend configuration that guards the outer door frame post from damage and chips to the paint.

Two (2) 20-01-0120 — Scuff Plate - Interior Cab Side Access Door, Brushed, S/S (Ea) — Y___N___

SIDE ACCESS DOOR SCUFF PLATES

Brushed stainless steel scuff plates shall be provided on the inside of two (2) cab side access door(s) to protect the painted finish.

One (1) 23-25-0010 — Cab Side Access Door Lights - (2) ROM LED, (1) Strip Light Per Door — Y___N___

COMPARTMENT LIGHTS - LED

Each cab side access door shall have a ROM LED lighting strip installed. The full height lighting strip shall be mounted vertically at the hinged side of the cab door. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door jam, shall be used to activate light.

One (1) 20-05-2020 — Inner Liners - Front, Aluminum — Y___N___

FRONT ALUMINUM INNER LINERS

Semi-circular inner liners shall be provided in each front wheel housing. They shall be constructed of aluminum and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The outside edge of the inner liner shall be bolted along its entire length. The bottom edge of liner shall not have a formed reinforcement flange to avoid trapping dirt and debris.

One (1) 20-05-2120 — Fenderettes - Front, Rubber — Y___N___

FRONT FENDERETTE

Black rubber fenderettes shall be installed in the front wheel openings. They shall be sufficiently wide to completely cover the outside rear tire and reduce wheel splash along the sides of the cab. They shall be installed with 1/4" hex head bolts (self-tapping sheet metal screws are not acceptable). There shall be a stainless steel backing strip between the rubber and the mounting flange to add support. Fenderette shall incorporate a vertical flange to cover the area where the cab side and wheel opening mounting surface meet. The fenderettes shall be a minimum of 1/4" thick, have a mold formed outer radius and a rounded bead at the wheel opening edge.

One (1) 20-07-010R — Mud Flaps - Front, Rubber — Y___N___

FRONT MUD FLAPS

Heavy duty mud flaps with the manufacturer's "script and flame logos" placed on the rear face shall be provided and installed to the rear of the front wheels. Flaps shall be 14" wide and be made of 0.38" heavy duty rubber material to prevent "sailing".

One (1) 20-07-020R — Mud Flaps - Rear, Rubber — Y___N___

REAR MUD FLAPS

Heavy duty rear mud flaps with the manufacturer's "script and flame logo" placed on the rear face shall be provided and installed to the rear of the rear dual wheels. Flaps shall be 24" wide and be made of 0.38" heavy duty rubber material to prevent "sailing".

One (1) 20-10-1800 — Mirror - Crossover, Stainless Steel, Approx 8" Dia — Y___N___

CROSSOVER MIRRORS

An approximately 8" diameter mirror with polished stainless steel housing shall be provided on the right front of the cab above the windshield. The main adjustment bar shall be mounted to the cab roof.

One (1) 20-10-2050 — Crossover Mirror Style - Convex — Y___N___

The crossover mirror shall be convex.

One (1) 20-10-2075 — Crossover Mirror Bracket Location - Outboard — Y___N___

The crossover mirror bracket shall have an outboard location.

One (1) 20-10-1400 — Mirrors - (2) Lang Mekra, 300 Series, 4-Way, Heatd/Remote w/ LED Turn & Marker — Y___N___

CAB MIRRORS WITH AUTOMATIC TEMPERATURE CONTROL

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors shall be installed, one (1) on each side of the vehicle. The main mirror shall be a four-way heated, remotely controlled adjustable 8" x 15" second surface chromed flat glass. The convex shall be a four-way adjustable 8" x 6" second surface chromed 400 mm radius glass.

The mirrors shall have a built-in temperature sensor that will automatically control the surface temperature of the mirror. An additional on/off switch is installed for mirror heat.

There shall be an integrated red dot LED turn signal incorporated into the mirror which shall flash as the main turn signal flashes. There shall also be an orange LED marker light in the rear face of the mirror.

One (1) Mirror Wiring - through Ignition Y___N___
20-10-4900

The mirrors shall be wired through the ignition.

One (1) Windshield - Tinted Y___N___
20-12-0300

WINDSHIELD

The windshield shall be of tinted automotive laminated safety plate glass with a curved two-piece design. The windshield shall have approximately 2900 square inches of visual area. Right and left hand windshield glass shall be symmetrical and interchangeable from side to side to minimize spare parts stock and expense. Windshield shall be installed and held in place by an extruded rubber molding with a bright finish, decorative, locking bead. Cab shall be finish painted prior to windshield glass being installed.

One (1) Windshield Wipers & Washers, Attacker/Capitol Y___N___
20-12-0308

WINDSHIELD WIPERS AND WASHERS

One (1) wet arm operated windshield wiper shall be provided for each plate of windshield glass for accessibility and optimum windshield wiping surface areas. Wipers shall be two speed type with intermittent wiping feature. One (1) control switch shall be provided and located on the self-canceling directional switch for both wiper arms. The switch shall combine the on/off (automatic park position), two speed, intermittent and washer functions in one control. The turning switch shall activate the wipers and control speed, and pushing it shall operate the washers. The wiper arms shall park in a low, horizontal position to provide an unobstructed view when not in use.

One (1) Windshield Wiper Interlock Y___N___
20-12-0312

WINDSHIELD WIPER INTERLOCK

The vehicle windshield wipers shall cease to operate once the vehicles parking brake has been applied.

One (1) 20-12-031S — Windshield Washer Fluid Reservoir - 5 QT, Attacker/Capitol — Y___N___

WINDSHIELD WASHER RESERVOIR

A five (5) quart windshield washer fluid reservoir shall be provided. It shall be accessed in the officer's step well. A hinged aluminum tread plate door with small D-ring handle shall be provided for access. A visual inspection shall be possible without tilting the cab (NO EXCEPTIONS). The aluminum tread plate door shall be properly labeled.

One (1) 20-12-271S — Door Glass - Electric Power Windows, Tinted, Attacker/Capitol — Y___N___

DOOR WINDOWS

A retractable window with automotive type laminated safety glass shall be provided in all four (4) forward hinged cab doors. All glass shall be tinted. Glass shall slide in stainless steel side channels with cloth/fiber liners. Rubberized fiber seals shall be located at the bottom of the window opening to prevent water and debris from entering the interior of the door when the glass is up (or down). A seal shall be placed on both sides (interior and exterior) of the glass. The front door glass shall be 23.75" high x 25.75" wide upper and 27.50" wide lower. The rear door glass shall be 23.75" high x 30" wide. The door window openings shall be trimmed on the exterior side with a smooth, black, poly vinyl chloride (PVC) molding

Electric power window regulator shall be manufactured by the Muncy Corporation and shall be the enclosed, sliding flexible shaft, gear type for ease of operation and reliability. The shaft shall enter a vinyl plastic protective sheath whenever it is exposed. A 12 volt electric motor with gear reduction box to slow driven gear rpm and increase power transmission shall be provided.

The power windows shall be wired through the ignition.

One (1) 20-12-2792 — Driver's Door Glass Switch - on Driver's Dash — Y___N___

DRIVER'S DOOR GLASS SWITCH

An individual switch for the driver's electric door window shall be provided on the driver's dash, wired to the ignition.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

One (1) — Officer's Door Glass Switch - on Officer's Dash — Y___N___

20-12-2796

OFFICER'S DOOR GLASS SWITCH

An individual switch for the officer's electric door window shall be provided on the officer's dash, wired to the ignition.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

One (1) Crew Door Glass Switches - on Crew's Doors Y___N___

20-12-2798

CREW DOOR GLASS SWITCHES

An individual switch for the crew electric door windows shall be provided on the crew doors, wired to the ignition.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

One (1) Glass - Side Crew Cab, Fixed, Tinted, Attacker/Capitol Y___N___

20-14-111S

CREW CAB SIDE GLASS

There shall be a side window on each side of the cab between the doors. They shall be tinted and be manufactured of automotive laminated safety glass. Each window shall measure 23” high x 12” wide. They shall be installed and held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. The cab shall be finish painted prior to window glass being installed.

One (1) Crew Cab Windows Tint - Green Laminate (ATT/CAP) Y___N___

20-14-2905

CREW CAB WINDOWS TINT

The crew cab windows shall have a green tint laminate.

One (1) Scuff Plates - (4) Cab Door Frame, S/S, Hi-Polished Y___N___

20-16-5000

CAB DOOR FRAME SCUFF PLATES

A highly polished stainless steel scuff plate shall be installed on the striker side of each cab door frame and shall run the full height of the door opening. The scuff plate shall be a single bend configuration that guards the outer door frame surface from damage and chips to the paint.

One (1) Cab Door Hinges - Mill Finish Y___N___

20-16-9010

CAB DOOR HINGES

All piano hinges on the exterior cab doors shall be mill finished.

One (1) 20-18-0220 Cab Exterior Handrails - (4) AL Knurled, Surface Mt, Attacker/Capitol Y___N___

CAB EXTERIOR HANDRAILS

Four (4) 24" handrails shall be installed on the side of the cab, one just to the rear of each cab door. The handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

One (1) 20-18-030T Exterior Cab Handrail Scuffplates s/s polished placed aft of each handrail Y___N___

One (1) 20-18-0520 Cab Interior Grab Handles - Attacker/Capitol Y___N___

CAB INTERIOR GRAB HANDLES

The following grab handles shall be provided on the interior of the cab and cab doors:

- Two (2) 6" chrome grab handles shall be provided, one on the inside of each front cab door.

- Two (2) 12" rubber covered grab handles shall be provided, one on the inside of each crew cab door.

- Two (2) 12" rubber covered grab handles shall be provided, one on the driver's side and officer's side front A-pillar, above the door hinge, to assist in entry to the cab.

One (1) 20-18-0720 Crew Cab Interior Grab Handles - Horizontal Window Mount, Attacker/Capitol Y___N___

CREW CAB INTERIOR GRAB HANDLES

Two aluminum knurled grab handles shall be provided, one on each rear crew door, horizontally mounted at the bottom of the window opening, to assist in entry to the cab. The handrail shall be coated in black Line-X.

_____

One (1) 20-18-1015 Handrail - 18", AL, Knurled, Horiz, Front of Cab, Centered below Windshield Y___N___

FRONT OF CAB HANDRAIL

One (1) 18" knurled aluminum handrail shall be provided and installed horizontally on the front of the cab, centered below the windshields.

One (1) 20-20-010C Capitol Crash Test Report - Chassis and Cab Y___N___

CAPITOL CRASH TEST

The cab shall be certified for the following tests:

- SAE J2420: Cab Over Engine (COE) Front Strength Evaluation - Dynamic Loading - Heavy Trucks
- SAE J2422: Cab Roof Strength Evaluation - Quasi Static Loading - Heavy Trucks
- ECE Regulation 29: Protection of Occupants of Cab in Commercial Vehicle

Performance Measure:

- After undergoing each test, the cab of the vehicle shall exhibit a survival space accommodating a 50th percentile male ATD in the median position without contact between the manikin and non-resilient parts for all seating positions.
- None of the doors shall open during the tests.
- The cab attachments may be distorted or fractured, however, the cab shall remain

attached to the vehicle frame in at least one attachment location.

One (1) 20-20-4015 Helmet Holder - Body Y___N___

HELMET HOLDER - BODY

The helmets shall be stored in the body in accordance with NFPA 1901 current regulations:

NFPA 14.1.8.4.1 A location for helmet storage shall be provided.

NFPA 14.1.8.4.2 If helmets are to be stored in the driving or crew compartment, the helmets shall be secured in compliance with 14.1.11.2.

One (1) 20-20-4024 Helmet Caution Labels (for 4 door cabs) Y___N___

CAUTION LABELS

Caution labels shall be posted in the cab so that they shall be visible from each seat position. The labels shall read: “Do Not Wear Helmets While Seated”.

One (1) 20-20-6010 Collision Avoidance System - HAAS Alert R2V™, 2-Year Safety Cloud® Y___N___

COLLISION AVOIDANCE SYSTEM

A HAAS Alert Responder-to-Vehicle (R2V) collision prevention solution shall be installed to provide real-time digital alerts to increase safety by notifying drivers in advance when crews are on-scene and responding. The digital alerts shall be delivered to navigation apps on smart phones and in-vehicle navigation systems.

The system shall include the HA-5 Transponder, R2V Safety Cloud® subscription, and Situational Awareness Dashboard. The transponder shall include cellular data service. The customizable Dashboard enables real-time operational status of the entire fleet on any device. The HA-5 Transponder shall be installed on the lower center dash to the driver’s side, with a clear view of the sky for optimal GPS signal strength.

HAAS Alert shall provide a two-year warranty on the HA-5 Transponder.

A two-year subscription to the HAAS Alert R2V Safety Cloud® shall be provided. The subscription service shall be administered and serviced by HAAS Alert.

One (1) 20-25-080B Headliner - Padded, Acoustical, Black Y___N___

HEADLINER

The cab shall be provided with a removable black headliner for ease of servicing the electrical wiring placed in the cab roof. The headliner shall consist of 3 layers of material.

Next to the roof shall be a layer of acoustical insulation made of polyester and polypropylene fibers. The next layer is 1/4" thick Luann. Finally, there is a 1/4" thick layer of foam/perforated acoustical vinyl.

The headliner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

One (1) 20-25-0910 Back Liner - ATP Y___N___

BACK LINER

The cab shall be provided with an aluminum tread plate removable back liner. The back liner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

One (1) 20-25-094B Crew Door Head Bumpers - (2) Vinyl, Padded, Black Y___N___

HEAD BUMPERS

Two (2) padded black vinyl head bumpers shall be provided each side on the interior of the cab above the crew doors in the header area.

One (1) 20-25-102B Engine Enclosure - Black LINE-X,® Attacker/Capitol Y___N___

FRONT CAB ENGINE ENCLOSURE

The engine enclosure structure shall have a 1-1/4" thick inner lining, on the engine side, comprised of aluminized foil and foam/barrier composite for heat insulation. The tunnel cover shall have 1/2" decoupled foam lower and 1" decoupled foam upper covering, on the cab interior side, for noise insulation. The top forward portion of the hood shall have a full-width riser with a sloped face for the installation of the switch panel. The sloped panels shall be used for vehicle accessory controls. A minimum of 1" shall be provided between the right edge of the accelerator pedal and the side of the engine hood. A removable cover over the engine enclosure and insulation shall be coated with black LINE-X® to act as an insulator for sound and engine temperature, as well as to provide an easy-to-clean work surface.

ACCESSORY MOUNTING STRUCTURE

The top portion of the engine enclosure shall have a stainless steel channel frame located between the engine tunnel structure and the cover to support the cover and facilitate mounting of accessories and equipment.

CREW CAB ENGINE COMPARTMENT ACCESS DOOR

An access door shall be provided at the rear of the engine enclosure for routine engine fluid

checks. The access door shall be insulated from engine heat with aluminized foil/foam/barrier composite and sealed to prevent exhaust fumes from entering the crew cab. The engine access door shall measure approximately 30.5" wide x 13.7" high.

One (1) 20-25-109A — Forward Cab Center Tunnel Removable Overlay Plate for PowerPoint Access — Y___N___

REMOVABLE TUNNEL COVER OVERLAY PLATE

A removable 9" long x 27" wide x .13" aluminum plate cover shall be provided for access to one (1) space of approximately 7" long x 24" wide beneath the rearmost center tunnel cover immediately to the rear of the center tunnel cover.

The space beneath this access area transitions from 1" to 2" deep in the power point/distribution area for center tunnel accessory potential.

This plate shall be attached directly to the tunnel cover surface and the plate finish shall match the engine tunnel cover.

One (1) 20-25-109E — Forward Cab Center Tunnel Cover Removable Plate-Center Dash — Y___N___

REMOVABLE TUNNEL COVER OVERLAY PLATE

A removable 27" long x 27" wide x .13" aluminum plate square cover shall be provided for access to two (2) equal spaces of approximately 10" long x 24" wide each beneath the center tunnel cover immediately to the rear of the center dash switch panel area and between the forward cab seating.

This plate shall be attached directly to the tunnel cover surface. It's finish shall match that of the engine tunnel cover.

One (1) 20-25-3000 — Steering Wheel - Tilt/Telescoping — Y___N___

18" STEERING WHEEL WITH TILT/TELESCOPE

A padded 18" steering wheel with center horn ring shall be provided. The upper steering column shall be of the tilt and telescopic type. A self-canceling directional switch with wiper control and headlight dimmer control shall be mounted on the steering column with an ICC four way flash switch. The self-canceling directional switch shall be easily removable and replaceable without removing the steering wheel or column assembly. The junction of the shaft and the cab floor shall be sealed to prevent air exchange between the cab interior and exterior.

One (1) 20-25-400B — Cab Dash Finish - Black LINE-X® — Y___N___

BLACK LINE-X® FOR CAB DASH

The cab dash shall be sprayed with black LINE-X® having a high resistance to abrasion and tearing. A vinyl cloth glued or laminated in some manner to a metal backing surface shall not be acceptable.

The LINE-X® shall absorb impact without surface damage. The LINE-X® shall be resistant to gasoline, diesel fuel, paints, bleaches, organic solvents and other cleaning agents and chemicals. It shall include sound dampening and vibration elimination properties.

The LINE-X® shall be solvent free and be environmentally safe to apply with no VOC or CFC hazards. Its surface shall have a non-glare, granular texture and be easily cleaned with common cleansing compounds.

One (1) 20-25-407B — Overhead Dash - Black LINE-X® Coating, Attacker/Capitol Only — Y___N___

OVERHEAD DASH

The overhead dash shall have a black LINE-X® coating.

One (1) 20-25-4092 — Forward Cab Center Overhead Dash Open Retention Strap (Attacker/Capitol) — Y___N___

DASH RETENTION STRAP

A removable, replaceable limit strap assembly shall be provided to prevent contact with the lower center dash panel and to retain the center overhead dash assembly in an open position when open for inspection or when access to the upper center power distribution is required.

The strap assembly shall consist of a 2" wide, sewn, nylon strap with a steel footman loop inserted in each sewn looped end of the nylon strap. Each of the two (2) footman loops shall be anchored by two (2) 1/4 inch machine screws. The upper anchor assembly shall be attached to the cab roof structure and the lower anchor assembly shall be attached to the hinged power distribution access panel.

One (1) 20-25-520B — Sun Visors - (2) Vinyl, Padded with Locking Adjustment, Black (Attacker/Capitol) — Y___N___

SUN VISORS

Two (2) approximately 8" x 28" padded, black sun visors shall be provided, one on the driver's side and one on the officer's side. Visor shall be supported at both ends to prevent drooping. The sun visors shall each have an adjustment knob that locks the visor position.

Four (4) 20-25-6010 — Cup Holder - Black LINE-X® Finish (Ea) — Y___N___

CUP HOLDER

Four (4) cup holder(s) with a black LINE-X®coating shall be installed in the cab. The cup holder shall be designed for mounting on top of the engine tunnel.

Four (4) 20-25-6053 Cup Holder Location - Ship Loose Y___N___

The cup holder shall be shipped loose.

One (1) 20-25-8000 Sign - Vehicle Dimension & Weight Y___N___

VEHICLE DIMENSION SIGN

A sign shall be provided in the front cab area indicating the height of the completed apparatus in feet and inches, length of the completed apparatus in feet and inches, and the gross vehicle weight rating (GVWR) in tons.

One (1) 21-00-B0AR Seat - Driver's, Bostrom, Sierra, Air-100, Reclining (NA w RollTek) Y___N___

DRIVER'S SEAT

The driver's seat shall be an H.O. Bostrom Sierra Air-100 reclining high back seat with air suspension. This seat shall have 5” horizontal adjustment.

One (1) 21-05-030D Seat Riser - Driver 5" High, Not Available with RollTek, ATT/CAP Y___N___

The driver's seat shall be held at NFPA regulated height by a 3CR12 stainless steel frame that measures approximately 18.13" wide x 5" high x 17" deep, front to back at the top and 13.72" deep, front to back at the bottom.

One (1) 21-12-700D Seat Belt - Driver's, 3 Point, Vertically Adjustable Y___N___

SEAT BELT

The driver's seat shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

One (1) 21-01-BSFF Seat - Officer's, Bostrom, Tanker 450, SCBA (NA w RollTek) Y___N___

OFFICER'S SEAT

An H.O. Bostrom Tanker 450 SCBA seat shall be provided for the officer. This seat shall have 5” horizontal adjustment.

One (1) 21-07-041O Seat Riser/Compt - Officer, 11" High, Short Depth, Not Avail w/ RollTek, ATT/CAP Y___N___

The officer's seat shall be held at NFPA regulated height by a 3CR12 stainless steel frame

which creates an enclosed compartment. The compartment measures approximately 18.13" wide x 11" high x 18.38" deep, front to back at the top and 9.99" deep front to back at the bottom.

One (1) 21-07-095F — Seat Riser/Compartment Door - Front Opening, 14.5"w x 8.38" h, Drop-Down — Y___N___

The seat riser/compartment shall have a front opening drop-down door that measures 14.5" wide by 8.38" high.

One (1) 21-09-120S — Cable Raceway - LINE-X®, Attacker/Capitol — Y___N___

RACEWAY

A cable raceway shall be provided between the seat riser compartment under the officer's seat and the officer's side toe kick area below the dash. The raceway will run on top of the floor next to the engine tunnel. The raceway shall be aluminum witha LINE-X® coating to match the lower cab dash/engine tunnel.

One (1) 21-08-0200 — SCBA Bracket - SecureAll™, Bostrom Seats Only (Ea) — Y___N___

One (1) NFPA compliant H. O. Bostrom SecureAll™ universal SCBA bracket shall be installed in the seat(s).

One (1) 21-12-701D — Seat Belt - Officer's, 3 Point, Vertically Adjustable — Y___N___

SEAT BELT

The officer's seat shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

One (1) 21-11-6D00 — Seat - (1) Inboard, Forward Facing, Bostrom, 400 SCBA Flip-up — Y___N___

REAR SEATING

The rear crew cab section shall contain one (1) center forward facing H.O. Bostrom 400CT SCBA flip-up passenger seat. The seat shall be installed on the rear wall of the cab directly behind the engine enclosure. The seating area shall allow maximum room for fire fighters in full turn out gear.

One (1) 21-08-0200 — SCBA Bracket - SecureAll™, Bostrom Seats Only (Ea) — Y___N___

One (1) NFPA compliant H. O. Bostrom SecureAll™ universal SCBA bracket shall be installed in the seat(s).

One (1) 21-12-704D — Seat Belts - Inboard, Forward Facing, 3 Point, Vertically Adjustable (Ea) — Y___N___

SEAT BELTS

The one (1) inboard, forward facing seat(s) shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.

One (1) 21-11-7B0A — Seat - (2) Outboard, Forward Facing, Bostrom, 400 SCBA Flip-up — Y___N___

REAR SEATING

The rear crew cab section shall contain two (2) outboard forward facing H.O. Bostrom 400CT SCBA flip-up passenger seats. The seats shall be installed on the rear wall of the cab. The seating area shall allow maximum room for fire fighters in full turn out gear.

Two (2) 21-08-0200 — SCBA Bracket - SecureAll™, Bostrom Seats Only (Ea) — Y___N___

Two (2) NFPA compliant H. O. Bostrom SecureAll™ universal SCBA bracket shall be installed in the seat(s).

Two (2) 21-12-705D — Seat Belts - Outboard, Forward Facing, 3 Point, Vertically Adjustable, (Ea) — Y___N___

SEAT BELTS

The two (2) outboard, forward facing seat(s) shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.

One (1) 21-12-7165 — Elbow Pads - Durawear™, Driver & Officer, Inboard — Y___N___

ELBOW PADS

Two (2) "head bumper style" elbow pads shall be installed on the engine tunnel inboard of the officer and the driver. They shall be covered in Durawear™ and be fastened to a bracket outboard to the engine tunnel. The finish of the bracket shall match that of the engine tunnel. The assembly shall be positioned approximately 6 inches rearward of the center dash vertical surface.

Note: elbow pads may need to be removed in order to access other components.

One (1) 21-12-719B — Elbow Pad Color - Black — Y___N___

The color of the elbow pads shall be black.

Five (5) 21-12-7400 — Upholstery - Seat, Vinyl, Black — Y___N___

SEAT UPHOLSTERY

All cab seats shall be upholstered in black colored vinyl material.

One (1) 21-13-1510 Capitol & Attacker Interior Decor, Miscellaneous Items Y___N___

INTERIOR DÉCOR

The following components shall always be black in color:

- Floor matting and floor mat edging
- Headliner trim
- Back liner trim
- Crew heater, complete assembly
- Electrical panels
- Plastic snap plugs for wire access holes
- Door seals
- Seat risers
- Under seat compartments
- Rubber covered grab handles
- Map desk, if present
- Tilt control storage door

The following item shall always be gray in color:

- Seat belt retractor cover.

One (1) 21-13-2500 Sign - Seating Capacity Y___N___

CAPACITY SIGN

A sign visible to the driver, that states the number of personnel the vehicle is designed to carry, shall be provided.

Five (5) 21-13-8000 Sew Customer Patch to Bostrom Head Rest or Seat Back (Ea) Y___N___

SEW PATCH TO SEAT HEAD REST(S)/SEAT BACK(S)

A customer patch shall be sewn to five (5) seat head rest(s) in place of the Seagrave Logo. If a head rest is not present, then the customer's patch shall be sewn onto the front of the seat back cushion.

One (1) 21-15-100A Cab Compt- (1) DS Rear Facing, Outbd, 18wx18dx21h O.D. Front Opening (Ea) Cap/At Y___N___

STORAGE COMPARTMENT

One (1) storage compartment with front opening shall be provided on the driver's side in the cab. The compartments shall be rear facing and in the outboard position. The overall

outside dimensions of the compartment shall be 18" wide x 18" deep x 21" high. The compartment shall be constructed of 1/8" smooth aluminum. The compartment exteriors shall have a LINE-X® coating that shall match the lower cab dash/engine tunnel.

One (1) 21-15-195N — Cab Compartment Door - Cargo Netting, f/ Front Opening — Y___N___

CAB COMPARTMENT DOOR

A black cargo net shall be provided over the cabinet front opening to secure stored equipment. The netting shall be made of two (2) inch wide black cargo netting with approximately two (2) inch square openings. The netting shall be fastened on the bottom with footman's loops. The top of the netting shall have two (2) seat belt buckles to secure/release the cover, one (1) in each corner. The male portion of each buckle shall be secured to the top of the netting, the female receiver portion shall be secured to the header of the compartment. A pull strap with loop handle shall be attached to each female receiver to release the cover. Velcro fold overs to the interior of the compartment shall be located on the bottom of the netting to facilitate removal.

One (1) 21-15-2150 — Pull Strap(s) Color - Orange — Y___N___

The pull straps shall be orange in color.

One (1) 23-25-0019 — No Cab Compartment Light Required — Y___N___

Two (2) 91-01-0210 — Finish - Cab Compartment Interior, Mill Finish (Ea Compt) — Y___N___

FINISH – CAB COMPARTMENT INTERIOR(S)

Two (2) cab compartment interior(s) shall have no finish applied.

If a hinged door is provided, the door interior shall match the compartment interior.

One (1) 21-15-100P — Cab Compt- (1) OS Rear Facing, Outbd, 21wx18dx21h O.D. Front Opening (Ea) Cap/At — Y___N___

STORAGE COMPARTMENT

One (1) storage compartment with front opening shall be provided on the officer's side in the cab. The compartments shall be rear facing and in the outboard position. The overall outside dimensions of the compartment shall be 21" wide x 18" deep x 21" high. The compartment shall be constructed of 1/8" smooth aluminum. The compartment exteriors shall have a LINE-X® coating that shall match the lower cab dash/engine tunnel.

One (1) 21-15-195N — Cab Compartment Door - Cargo Netting, f/ Front Opening — Y___N___

CAB COMPARTMENT DOOR

A black cargo net shall be provided over the cabinet front opening to secure stored equipment. The netting shall be made of two (2) inch wide black cargo netting with approximately two (2) inch square openings. The netting shall be fastened on the bottom with footman's loops. The top of the netting shall have two (2) seat belt buckles to secure/release the cover, one (1) in each corner. The male portion of each buckle shall be secured to the top of the netting, the female receiver portion shall be secured to the header of the compartment. A pull strap with loop handle shall be attached to each female receiver to release the cover. Velcro fold overs to the interior of the compartment shall be located on the bottom of the netting to facilitate removal.

One (1) 21-15-2150 — Pull Strap(s) Color - Orange — Y___N___

The pull straps shall be orange in color.

One (1) 23-25-0019 — No Cab Compartment Light Required — Y___N___

Two (2) 91-01-0210 — Finish - Cab Compartment Interior, Mill Finish (Ea Compt) — Y___N___

FINISH – CAB COMPARTMENT INTERIOR(S)

Two (2) cab compartment interior(s) shall have no finish applied.

If a hinged door is provided, the door interior shall match the compartment interior.

One (1) 21-23-071S — HVAC, Vent, Defrost - Forward Cab, 46,000 /33,000 BTU, ATT/CAP — Y___N___

HEATER/DEFROSTER/AIR CONDITIONING-FORWARD CAB

A front cab heater / defroster / air conditioning unit shall be provided. The HVAC unit shall distribute filtered, heated or cooled, fresh and / or recirculated, air through ducting of the cab front dash panels.

Heating capacity shall be rated at 46,000 BTU minimum.

Cooling capacity shall be rated at 33,000 BTU minimum.

The HVAC unit shall be located in the cab RH firewall and have a variable speed 625 CFM blower assembly. The HVAC unit shall be designed for serviceability and be located behind a removable panel. Access to air intake filter, heater core, evaporator core, and fan assembly shall be provided without removing the HVAC housing from the installed location.

Intake air shall be filtered by a commercially available filter and can be mixed between fresh and recirculated for vent / defrost and heat / cool selections.

Output air can be distributed between the four (4) defroster vent located at the base of the windshield, four (4) rear facing dash vents, and two (2) lower rear facing vents.

Defrost function selection can provide heated or cooled output air, fresh or recirculated intake air, and utilizes the AC system for drying air to the windshield. Output air will be directed through six (6) vents. Four (4) fixed flow vents located at the base of the windshield positioned and designed to distribute the air up. Two (2) adjustable vents located, one (1) at the LH edge of the dash directed at the LH driver's door glass and one (1) at the RH edge of the RH passenger's door glass.

Vent function selection can provide heated or cooled output air, fresh or recirculated intake air. Output air shall be directed rearward through four (4) adjustable vents. Two (2) adjustable vents shall be located in the center dash panel with positioning optimized for LH driver and RH passenger air flow direction to the upper torso. Two (2) adjustable vents shall be located, one (1) each forward seating position, in the upper outboard area of each forward seating kick panel, below the dash.

The front HVAC unit shall utilize a dedicated condenser located on the forward cab roof. The condenser shall be a stacked type, low profile and feature two fans. All connections, hose and harness, shall be through weatherproof bulkheads. The condenser assembly shall include a white powder coated cover over the stacked condenser coils and a white painted protective cover over the Freon hoses, dryer, valves, switches and / or solenoids above the cab roof and connected to the condenser body. Condenser and cover mounting shall be made without perforating the cab roof skin for maximum resistance to water intrusion to the cab interior.

One (1) 91-00-6105 — Finish - Cab Roof Condenser Cover, Vendor White — Y___N___

The cab roof condenser cover shall have the white finish as it comes from the manufacturer.

One (1) 21-23-0820 — Manual Coolant Shutoff Valve - Forward Cab HVAC Inflow (Inlet), ATT/CAP — Y___N___

MANUAL COOLANT SHUTOFF VALVE - INLET

The forward cab heater inlet flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted on a plate utilized specifically for auxiliary engine coolant flow control. The mounting plate and valve location shall be in the forward, RH side of the chassis engine area. Valve to be 1/4 turn style with label for ease of identification.

One (1) 21-23-0900 — Manual Coolant Shutoff Valve - Forward Cab HVAC Outflow (Return), ATT/CAP — Y___N___

MANUAL COOLANT SHUTOFF VALVE - RETURN

The forward cab heater return flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted on a plate utilized specifically for auxiliary engine coolant flow control. The mounting plate and valve location shall be in the forward, RH side of the chassis engine area. Valve to be 1/4 turn style with label for ease of identification.

One (1) 21-23-271T — Rear Heat Addition - Crew Cab, 81,000 BTU Heat Combined, 20" Wide, A&C — Y___N___

REAR HEAT ADDITION CENTER REAR CREW CAB, 3 SPEED / ELECTRONIC CONTROL

A crew cab heater shall be provided. The heater unit shall provide filtered, engine coolant heated, air to the crew cab area through a ducted enclosure.

Crew heating capacity shall be rated at 35,000 BTU minimum and the combined heating capacity of the cab HVAC units shall be 81,000 BTU minimum.

The heater unit shall have a variable speed 430 CFM blower assembly. The heater unit shall be designed for serviceability and be located against the rear crew cab wall on the inboard officer side forward facing position in a vented and ducted enclosure approximately 16" deep x 14.5" high x 20" wide. Access to air intake filter, heater core, and fan assembly shall be provided. If the heater unit is centered on the back wall, an additional cover shall be provided to cover the hoses on the floor. This cover finish shall match the crew heater assembly.

Crew heater function shall feature two (2) controls with backlighting. One (1) rotary fan control switch with four positions (OFF, LOW, MEDIUM, HIGH) and one (1) rotary temperature control coupled to an electronic water valve. The heater control shall be located near the ceiling above the rear engine access door.

One (1) 21-23-3020 — Manual Coolant Shutoff Valve - Crew Cab Heater Inflow (Inlet), Attacker/Capitol — Y___N___

MANUAL COOLANT SHUTOFF VALVE - INLET

The crew cab heater inlet flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted on a plate utilized specifically for auxiliary engine coolant flow control. The mounting plate and valve location shall be in the forward, RH side of the chassis engine area. Valve to be 1/4 turn style with label for ease of identification.

One (1) 21-23-3100 — Manual Coolant Shutoff Valve - Crew Cab Heater Outflow (Return), ATT/CAP — Y___N___

MANUAL SHUTOFF VALVE - RETURN

The crew cab heater return flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted on a plate utilized specifically for auxiliary engine coolant flow

control. The mounting plate and valve location shall be in the forward, RH side of the chassis engine area. Valve to be 1/4 turn style with label for ease of identification.

One (1) 21-23-381S — Air Conditioner Addition - Crew Cab, 72,500 BTU Total, Attacker/Capitol — Y___N___

AIR CONDITIONING SYSTEM ADDITION - CREW CAB

A crew cab air conditioning unit shall be provided on the cab ceiling, above the rear portion of the engine enclosure. The AC unit shall distribute cooled recirculated, air through six (6) outlets. The six air outlets include four (4) adjustable rear facing air diffusers and two (2) adjustable side outboard facing vents.

Cooling capacity of the crew AC evaporator unit shall be rated at 39,500 BTU minimum and the combined cooling capacity of the cab HVAC evaporator units shall be 72,500 BTU minimum.

The crew AC unit shall have a variable speed 577 CFM blower assembly. Intake air shall be filtered by a commercially available and serviceable filter. The AC unit shall feature independent fan speed and temperature controls. Evaporator condensate shall be evacuated by two independent drain hoses, each routed inside a single stainless pipe located beneath the AC unit, between the AC unit and the top of the engine enclosure. The two independent hoses route through the top of the engine enclosure cover, behind the engine block, and terminate outboard the LH chassis frame rail.

The crew AC unit shall utilize a dedicated condenser located on the, rear, crew cab roof. The condenser shall be a stacked type, low profile and feature two fans. All connections, hose and harness, shall be through weatherproof bulkheads. The condenser assembly shall include a white powder coated cover over the stacked condenser coils and a white painted protective cover over Freon hoses, dryer, valves, switches and / or solenoids above the cab roof and connected to the condenser body. Condenser and cover mounting shall be made without perforating the cab roof skin for maximum resistance to water intrusion to the cab interior.

The air conditioning system, front and rear combined, shall exceed the performance standard of cooling the cab from an ambient temperature of 100 degrees Fahrenheit at 50% relative humidity to an average cab temperature of 75 degrees Fahrenheit in less than 30 minutes.

One (1) 91-00-6105 — Finish - Cab Roof Condenser Cover, Vendor White — Y___N___

The cab roof condenser cover shall have the white finish as it comes from the manufacturer.

One (1) 21-23-8020 — HVAC Controls - Forward Cab, 4 Selectors, Dedicated AC, Attacker/Capitol — Y___N___

HVAC CONTROL - FORWARD CAB

HVAC controls shall feature rotary switches, function labeling, backlighting, and have colored indicators. A single, lighted, AC engagement push switch shall be provided for engaging the AC system components as needed.

The HVAC panel shall have four (4) rotary control switches inline, from left to right, in the following order:

· Fan Speed (OFF, LOW, MEDIUM, HIGH)
· Water Temperature Blend Control (HEAT-COOL)
· Outlet Air Blend Control (DEFROST-VENT)
· Intake Air Blend Control (FRESH-RECIRC)

The HVAC panel shall have one (1) raised, “push to engage”, switch that illuminates when the air conditioning is engaged. This switch shall be centrally located on the control panel, between the second and third rotary control switches, along the top edge of the control panel.

The HVAC control panel shall allow the operator to make selections or adjustments to any one of the four (4) selectors without resetting or disturbing the selections of other three (3) controls.

The HVAC control shall feature an override to engage the air conditioning system when the operator has selected 100% Defrost on the Outlet Air Blend Control.

One (1) == Misc. Chas - SFA Chassis - 0.000 == Y___N___

One (1) == 12V Elec - CAP Pumper - 0.000 == Y___N___

One (1) Electrical Wiring - 12V General, Attacker/Capitol Y___N___
22-00-0107

GENERAL 12-VOLT ELECTRICAL WIRING REQUIREMENTS
12-VOLT ELECTRICAL SYSTEM

The apparatus shall be equipped with a heavy-duty 12-volt electrical system. All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All electrical wiring and components installed in the apparatus shall be suitable for use in severe duty emergency vehicle applications.

GENERAL WIRING AND WIRE HARNESS CONSTRUCTION

Unless otherwise specified by the component supplier, all insulated wire and cable shall conform to SAE J1127 *Low Voltage Battery Cable* type SGX or STX, or SAE J1128 *Low Voltage Primary Cable* type SXL, GXL, or TXL.

Circuit feeder wires shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected.

Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application.

The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures.

The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C) except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

CIRCUIT IDENTIFICATION

All wiring shall be uniquely identified by a circuit number and color coding. The identification shall be referenced on a wiring diagram. Wires less than 8 AWG shall be permanently identified at least every 2.0 inches (50.8 mm) by a circuit and function code.

WIRING CONNECTIONS

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. Secondary locks shall be utilized on all connectors that are secondary lock capable.

Exterior exposed wire connectors shall be environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Seal plugs shall be installed in all unused sealed connector cavities.

All ungrounded electrical terminals shall have covers or be in enclosures to protect against corrosion, excessive heat, excessive vibration, physical damage, liquid contaminants, dust, and other environmental factors.

Wiring splices shall be crimp-type, molded, or sonic weld type. Adhesive lined heat shrink tubing shall be used to seal and insulate splice joints.

WIRE AND CABLE ROUTING

Wiring routed through holes in sheet metal or castings shall have edges protected by an appropriately sized grommet.

Wiring shall be routed to avoid metal edges, screws, trim fasteners and abrasive surfaces. When such routings are not possible, protective devices (shields, caps, etc.) shall be used to protect the wires. When wires must cross a metal edge the edge shall be covered with a protective shield.

Wiring shall be routed to provide at least 3 inches (76.2 mm) clearance to moving parts, unless positively fastened or protected by a conduit.

Wire routings should avoid areas where temperatures exceed 180° F (82.2° C) and a minimum clearance of 6 inches (152.4 mm) shall be maintained from exhaust system components. Where compliance with this requirement is not possible, high temperature insulation and heat shields shall be utilized.

When wiring is routed between two members where relative motion can occur the wiring shall be secured to each member, with enough wire slack to allow flexing without damage to the wires.

Wiring to all circuit components (switches, relays, etc.) in exposed locations shall provide a drip loop to prevent moisture from being conducted into the device via the wire connection.

Routing wires into areas exposed to wheel wash shall be avoided if possible. When such routings cannot be avoided, adequate clipping or protective shields shall protect the wires from stone and ice damage.

Wiring shall be secured in its intended location with appropriately sized bolt-on clips and nylon wire ties.

Electrical components designed to be removed for maintenance shall include a sufficient length of wire to allow the component to be pulled away from the mounting area for inspection and service work.

Bulkhead type connectors or sealed fittings shall be used to prevent the entry of liquid contaminants into weather tight enclosures.

SPARE WIRES

Wiring harnesses from/to major power and signal distribution areas of the apparatus shall include spare wires for future expansion of the system.

ELECTRICAL SYSTEM COMPONENTS

Serviceable components shall be readily accessible. Switches, relays, terminals and connectors shall have a dc rating of 125% of the maximum current for which the circuit is protected.

A distributed power and signal system shall be utilized on the apparatus to minimize power supply voltage drops. Power and signal distribution areas in the cab shall be concentrated in five (5) areas.

A lower cab power and signal distribution center shall be located in the center forward portion of the cab "dash". It shall be hinged and opened by unlocking two (2) top mounted, double hinged, lift and pull latches. This area shall contain relays and circuit breakers installed in a logical and serviceable fashion.

An additional lower cab power and signal distribution center shall be located below the officer's dash behind the kick plate.

An upper power and signal distribution area shall be located in the forward portion of the cab ceiling, above the engine tunnel. Components in this area shall be permanently labeled and easily accessible by opening a hinged cover.

A power and signal distribution area shall be located in the pump module, if applicable. Components in this area shall be permanently labeled and easily accessible.

A power and signal distribution area shall be located on the front of the forward body compartments. Components in these areas shall be permanently labeled and easily accessible.

All electrical components or devices installed in an exposed area on the outside of the cab or body shall be mounted in such a manner, or protected by a gasket, caulking or other means, so that moisture shall not accumulate in it.

CORROSION PROTECTION

Externally exposed, non-plug type, electrical connections shall be given a hand applied or sprayed application of an industrial standard insulation coating with a minimum rating of 2100 volts per mil thickness. Insulation shall protect the connection from water induced electrical corrosion and accidental short circuiting. Should the connection be loosened or removed during the manufacturing process another coating shall be applied after it has been refastened or replaced.

One (1) 22-00-0110 Main Battery and Starter Circuits Y___N___

MAIN BATTERY AND STARTER CIRCUITS

BATTERY POWER BUSS

All positive cables from the batteries shall be connected directly to a battery positive buss bar located as close to the batteries as practical. The alternator shall be wired directly to the battery positive buss bar through the ammeter shunt, if one is provided.

ENGINE STARTER AND INTERLOCK CIRCUITS

The starter solenoid(s) shall be connected directly to the battery positive buss bar. An interlock shall be provided to prevent the operator from engaging the starter when the engine is running.

BATTERY GROUND BUSS AND SINGLE POINT GROUND SYSTEM

All negative (ground) cables from the batteries shall be connected directly to a battery negative buss bar located as close to the batteries as practical. Appropriately sized ground feeder cables shall be utilized to provide a low impedance ground path to the negative buss bar for all electrical devices on the apparatus.

APPARATUS GROUND BONDING

The battery negative buss bar shall be connected to the chassis frame. The cab, pump enclosure (if furnished), and body structure shall be electrically bonded to the vehicle frame with braided copper grounding straps.

One (1) 22-00-0120 EMI/RFI Protection Y___N___

EMI/RFI PROTECTION

The apparatus electrical system and related devices shall have the ability to function in the severe electromagnetic environment typical of fire ground operations.

EMI/RFI EMISSIONS

State-of-the-art electrical system design and components shall be utilized to ensure the suppression of radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions that may cause communication and navigation radio-reception interference. The electrical system and related components shall comply with the applicable sections of J551/1 *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*

EMI/RFI SUSCEPTIBILITY

The apparatus electrical system shall incorporate immune circuit designs, filtering, shielding and twisted-pair wiring to control EMI/RFI susceptibility. Particular attention shall be given to harness and cable routing to minimize the potential for conducted and radiated signal susceptibility.

Electrical / electronic equipment on the apparatus shall not be susceptible to radiated and conducted EMI/RFI emissions from on-board radio transmitter(s) and shall comply with the requirements of SAE J551-12 *Vehicle Electromagnetic Immunity--On-Board Transmitter Simulation*.

One (1) 22-00-0130 Low Voltage Electrical System Performance Testing Y___N___

ELECTRICAL SYSTEM PERFORMANCE TESTING

An operational test shall be conducted to ensure that all installed electrical equipment is properly connected and is in working order. The apparatus alternator shall be tested with the total continuous electrical load applied and engine running up to the engine manufacturer's governed speed for a minimum of 2 hours. Additionally, all warning lights shall be run continuously during the three (3) hour NFPA pump certification test (or at another time for not less than three (3) hours). Activation of the load management system (if furnished) shall be permitted during this test. An alarm sounded by excessive battery discharge, as detected by the low voltage warning system, or a system voltage of less than 11.8 V dc at the battery for more than 120 seconds, shall be considered a test failure.

One (1) 22-00-014A Cab Dash & Instruments Y___N___

CAB DASH AND INSTRUMENTS FOR 2021 EMISSIONS ENGINE

A non-glare instrument panel, custom designed to accommodate the appropriate functions, shall be provided. Illumination shall be provided for controls, switches, instruction plates, gauges, and instruments necessary for the operation of the apparatus. The cab dash shall be forward slanted, and constructed of aluminum. Rocker switches that have integral lights shall be as follows when applicable: red indicator lights shall be provided for warning light and engine/mechanical functions, green indicator lights shall be provided for scene and auxiliary lighting and general functions; selection shall be at the manufacturer's discretion.

A system shall be provided that interacts with the engine electronics and eliminates redundant senders and switches. The electronic engine gauges shall receive information on the SAE J1939 data link to improve reliability and gauge accuracy. Connectors shall be utilized for ease of service. The dial face shall be black with white lettering. The primary letters shall be in Imperial with the secondary, smaller letters in metric. The dial shall have international non-language symbols for the gauge function (except speedometer). Gauges shall have illumination with a monochrome LCD display located on the

speedometer gauge. They shall also have a 250 degree dial sweep for greater definition of scale. SAE J1939 Faults and Warnings shall be displayed on the LED display.

DRIVER'S INSTRUMENTATION

The following individually mounted gauges shall be provided: (all inclusive gauge clusters not allowed, no exceptions)

Main Gauges

- 3" Speedometer: 0-85 mph with built-in LCD display
- 3" Tachometer: 0-4000 rpm

Satellite Gauges

- 2" Fuel Level: Empty – full with low level warning indicator
- 2" Voltmeter: 10-18 VDC
- 2" Coolant Temperature: 100-280 Degrees Fahrenheit
- 2" Engine Oil Pressure: 0-100 psi
- 2" Transmission Oil Temp: 100-320 Degrees Fahrenheit
- 2" Front Air Pressure: 0-150 psi
- 2" Rear Air Pressure: 0-150 psi
- 2" DEF Level: Empty – full with low level warning indicator

AUDIBLE CAB ALARMS

Audible alarms shall be provided in the cab to alert the operator of conditions that require attention. The alarm device(s) shall be audible in the driving compartment.

An intermittent audible tone shall sound when the following conditions are present and the parking brake is disengaged:

- Active Hazard Warning – (Do Not Move Apparatus; Door Open, Tower Raised, Ladder Rack Down, etc.)
- Seat Belt Warning (A separate and different tone than that for the Active Hazard Warning)

A steady audible tone shall sound when the following conditions are present:

- Stop Engine (includes High Engine Temperature and Low Engine Oil Pressure)
- Low Voltage
- Engine Air Filter Restriction
- Jackknife Warning (if applicable)

• Tiller Cab Operator Not in Position (if applicable)

DRIVER'S AND OFFICER'S CONTROLS

The following rocker style control switches shall be identified and accessible to the driver while seated. Switches shall include integral indicator lights (where applicable) to advise that the switch has been energized and identification labels shall be illuminated for night driving.

• Ignition switch with green indicator light
• Engine Start switch
• Headlight / Tail-Marker-ID light switch
• Instrument Panel Dimmer control rheostat

The following controls shall be stalk mounted on the steering column and identified and visible to the driver while seated:

• Turn Signal Control and 4-Way Hazard Warning switch
• High-beam headlight switch
• Windshield wiper control switch
• Windshield washer control switch

The following controls shall be identified and accessible to the driver while seated:

• Parking (Spring) Brake Control
• High Idle control switch
• Other controls (as defined elsewhere in this specification)

The following controls shall be identified and accessible to both the driver and officer while seated. Controls shall be identified and illuminated for night driving.

• HVAC control panel

• Other controls (as defined elsewhere in this specification)

One (1) 22-00-014K Driver's Indicator Light Module, Attacker/Capitol Only Y___N___

DRIVER'S INDICATOR LIGHT MODULE

The following indicators shall be mounted in a removable modular panel in front of the steering column. The indicators shall be identified with universal ISO 2575 symbols where applicable and visible to the driver while seated. All applicable indicators in the modular panel shall automatically illuminate for 1 second upon activation of the ignition switch to verify operation:

- Battery Switch “On” green indicator light
- Ignition Switch "On" green indicator light
- Check Transmission amber indicator light
- High Transmission Temperature amber indicator light
- Check Engine amber indicator light
- High Coolant Temperature red indicator light
- Low Coolant Level red indicator light
- Stop Engine (Engine Warning) red indicator light
- High Exhaust Temperature (HEST) amber indicator light
- Diesel Particulate Filter Regeneration (DPF) amber indicator light
- Diesel Exhaust Fluid (DEF) Level amber indicator light
- Wait-to-Start amber indicator light
- Malfunction Indicator Light (MIL) amber indicator light
- ABS warning amber indicator light
- Automatic Traction Control activated amber indicator light
- Electronic Stability Control activated amber indicator light
- Spring (Parking) Brake "On" red indicator light
- High Beam “On” blue indicator light
- Low air pressure red indicator light
- Left Turn signal green indicator light
- Right Turn signal green indicator light
- Panel Fault amber indicator light
- Cab Not Locked red indicator light

One (1) 22-00-015D — Emergency & Work Light Switch Panel - Driver — Y___N___

EMERGENCY & WORK LIGHT SWITCH PANEL - DRIVER'S SIDE

All emergency light and work area lighting control switches shall be mounted in a removable panel located in the overhead position on the driver's side of the cab. The light switches shall be "rocker" type with an internal indicator light (where applicable) to show when the switch is energized. All switches shall be properly identified by an illuminated label for night driving.

A master warning light switch, red in color, shall be provided for emergency lighting.

A momentary clear warning light switch shall be provided for clear emergency lighting control that shall default on.

Work lights are defined as ground, step, rear pick up, hose bed or dunnage area, if on the apparatus and specified.

One (1) 22-00-0160 — Door Ajar/Hazard Warning Indicator - LED — Y___N___

DOOR AJAR/HAZARD INDICATOR LIGHT (DO NOT MOVE APPARATUS)

A Whelen "T0" series 2" round red flashing LED light with chrome flange shall illuminate automatically whenever the apparatus parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is open.
- Any ladder or equipment rack is not in the stowed position.
- Stabilizer system is not in its stowed position.
- Powered light tower is extended.
- Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

The hazard warning light shall be identified with a label that reads: “Do Not Move Apparatus When Light Is On.” The light shall be located on the ceiling between the driver and the officer.

One (1) Digital Clock - 24 Hour Y___N___
22-00-017B

DIGITAL CLOCK

A 24 hour real-time digital clock shall be identified and visible to the driver while seated.

One (1) Electrical Wiring - 12V INTELEX™ PLUS, Attacker/Capitol Y___N___
22-00-030A

ELECTRICAL WIRING REQUIREMENTS - INTELEX™ PLUS

The apparatus shall be equipped with an INTELEX™ PLUS management system for control of the electrical system devices, where applicable.

CIRCUIT PROTECTION

Circuit protection devices shall be utilized to protect each electrical circuit. All circuit protection devices shall be sized according to 125% of the anticipated load to prevent wire and component damage when subjected to extreme current overload.

SOLID STATE CIRCUIT PROTECTION

Intelex power distribution modules shall utilize solid state output channels and feature fully protected high-side drivers (+12V) to protect wiring. High-side drivers shall provide overload protection, current limitation, transient protection, and replicate the function of an automatic reset circuit breaker. If output current exceeds the rated amperage, the output shall automatically turn off. After 30 seconds, the module shall attempt to re-energize the load. If the output is still overloaded, it shall remain off until the power is cycled. In the event of a communications loss with the vehicle’s control module, all outputs not

controlling a moving device, such as a ladder rack, shall remain in their previous state until communication is restored or the power is cycled.

NON-SOLID STATE CIRCUIT PROTECTION

Circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258 unless operational requirements and/or safety concerns dictate Type-III manual reset type conforming to SAE J1625. Automotive-type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized when required to protect electronic equipment.

POWER CONTROL RELAYS AND SOLENOIDS

Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the anticipated current load.

BUSSMANN MVEC RELAYS AND CIRCUIT PROTECTION

Manufactured as a hardened and weather tight module, the mVEC is rated at 200 Amps. The mVEC is configured to provide various OEM circuit protection and switching functions, using industry standard fuses, relays and breakers, with the status and control of each circuit accessible through J1939 CAN open messages. Each mVEC is rated at 200 Amps, with individual outputs rated up to 30 Amps. Waterproof to high pressure spraying (IP66 equivalent). The mVEC is designed and manufactured with robust features such as heavy-duty housing, silicon and Gortex gaskets, and protective conformal coated electronics, to operate in demanding vehicle environments such as those found in fire apparatus.

One (1) 22-00-0310 Information Center II - INTELEX™ PLUS Y___N___

INFORMATION CENTER II

A 5" color display capable of displaying graphical images as well as text messages shall be located on the cab dash. The main display page shall include the date, time and ambient air temperature in Fahrenheit. Additional information pages shall be provided for the warning indications, not stowed indications, and open doors. The display shall be dimmable with a Rheostat control on the dash and shall have an override button on the control to dim to ten (10) percent.

APPARATUS STATUS INDICATORS AND AUDIBLE ALARMS

If a monitored "Not Stowed" or "Warning" condition is active, the corresponding status indicator shall flash. In addition to visual indicators, audible alarms shall sound when designated conditions activate the “Not Stowed” and “Warning” status indicators.

WARNING INDICATOR

A flashing red triangle symbol shall alert the vehicle occupants of an active "WARNING" condition. This is defined as a situation or status on the vehicle that is of high priority or "mission critical" nature. The flashing red triangle shall be displayed on the Information Center and dash gauge panel in front of the driver. The following are typical "Warning" (high priority) conditions:

- HYDRAULIC FILTER

- AIR RESTRICTION
- LOAD MANAGE
- LOW AIR PSI
- CAB NOT LOCKED
- ABS FAULT
- LOW VOLTAGE
- JACK KNIFE (If applicable)
- TRAILER ABS
(If applicable)

NOT STOWED INDICATOR

A flashing Not Stowed indicator shall alert the vehicle occupants of an active "Not Stowed" condition. This is defined as a situation or status on the vehicle that is not of high priority or "mission critical" nature, but requires attention before the vehicle is put in motion. The following are typical “Not Stowed” (not high priority) conditions:

- AERIAL RAISED (If applicable)
- DECK GUN RAISED (If applicable)
- JACKS EXTENDED (If applicable)
- DUMP CHUTES (If applicable)

The following items are considered Not Stowed only when the parking brake is released.

- LADDER UP (If applicable)
- LIGHT TOWER UP (If applicable)
- OUTRIGGERS (If applicable)
- DS HATCH OPEN (If applicable)
- PS HATCH OPEN (If applicable)
- JACKS EXTENDED (If applicable)
- Q2B TILTED (If applicable)
- DECK GUN RAISED (If applicable)
- DS TELE LIGHT UP (If applicable)
- PS TELE LIGHT UP (If applicable)
- STEP DOWN (If applicable)
- PEDESTAL COVER UP (If applicable)

AUDIBLE ALARMS

The following conditions shall cause the audible alarm to sound “steady” (not an intermittent beep); signifying a “mission critical” condition exists that requires immediate attention.

- STOP ENGINE
- LOW AIR
- LOW COOLANT
- CAB NOT LATCHED
- LOW VOLT
- ABS FAULT
- LOW OIL PRESSURE

Corresponding “Low Air”, “Stop Engine” visual indicators shall be located in the dash gauge panel in front of the driver.

The following conditions shall cause a chime alarm to sound “intermittently” (i.e., beep), once the parking brake is released, signifying a condition exists that may become “mission critical” if not quickly addressed.

- ANY LIGHT NOT STOWED
- ANY BODY DOOR OPEN
- ANY CAB OR CREW CAB DOOR OPEN

An audible alarm shall sound if any of the seat belts are not properly closed and the vehicle is going 5 mph or greater. The sound shall be different from all other audible alarms in the cab.

OPEN DOORS / DEPLOYED EQUIPMENT RACKS / EXTENDED STEPS

When a cab or compartment door is open, a step is extended, or equipment (i.e., ladder) rack is deployed, the “DOORS” indicator shall flash. Pressing the corresponding button shall display an overhead graphical representation of the apparatus. This image depicts the open cab door(s), open compartment door(s), deployed equipment rack(s), and/or extended step(s). The chime alarm shall also sound when the parking brake is released.

One (1) 22-00-031A — Customer Information on Display - Customer Name & City — Y___N___

The customer's name and city shall display on the information display screen.

One (1) 22-00-031F — Customer Information on Display Shall Not Be PIN Protected — Y___N___

Customer information on the display shall not be PIN protected.

One (1) Load Management System - INTELEX™ PLUS Y___N___
22-00-0320

AUTOMATED ELECTRICAL LOAD MANAGEMENT SYSTEM

The apparatus shall be equipped with an automated load management system. The load management system shall monitor battery voltage and activate the engine high idle system (provided NFPA interlocks have been established) before disabling any electrical loads. If engine high idle is not available or activation does not result in sufficient battery system voltage, individual electrical loads shall be automatically and sequentially deactivated until voltage returns to an acceptable level. Loads shall be sequentially reactivated to avoid a sudden large voltage demand on the system. Electrical loads defined in NFPA 1901 as "minimum continuous" shall not be subject to automatic load management. Load prioritization shall be independently field programmable by authorized users.

If the load management system becomes active, the "LOAD MANAGE" indicator shall illuminate on the "Warnings" page of the INTELEX™ PLUS cab mounted display.

One (1) Load Sequencer - INTELEX™ PLUS Y___N___
22-00-0330

LOAD SEQUENCER

A sequential switching device shall automatically energize the specified optical warning devices to minimize potentially damaging voltage fluctuations due to the sudden addition or removal of large current demands on the electrical system. Upon activation of the "EMERGENCY MASTER" warning switch and provided the individual optical warning device switches are also activated, the following loads shall be activated (or deactivated) in 0.5 second intervals:

- Front Light Bar
- Side Light Bar (if applicable)
- Front and Rear Flashing Lights
- Side Warning
- Rear Beacons
- High Beam Headlight Flash

One (1) Vehicle Data Recorder & Seat Monitor - FRC #SBA200, INTELEX™ PLUS Y___N___
22-00-0344

VEHICLE DATA RECORDER AND SEAT MONITOR DISPLAY

Fire Research series SBA200-A00 seat monitor display and vehicle data recorder kit shall be installed. The kit shall include a seat monitor display module, a vehicle data recorder, and cables.

The seat monitor display shall be programmable for up to twelve (12) seats and have a seatbelt icon for each. A message display, push buttons for navigating through programs,

and vehicle system warning indicators shall be located on the front of the seat monitor display.

The data recorder case shall be waterproof. It shall have inputs for monitored information from the vehicle J1939 CAN bus, independent sensors, seatbelt and seat occupied switches, outputs for audible alarms, and two-way FRC datalink connectors.

The vehicle data recorder shall record the following data once per second and store it in a 48 hour loop:

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

The vehicle data recorder shall record the following data once per minute and have memory to store it for 100 engine hours:

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

The oldest data shall be erased first when memory capacity is reached. All data shall be password protected and uploadable from the vehicle data recorder to a computer running FRC HAWK data management software. The HAWK software shall store, manage, provide graphic displays and produce formatted reports of the vehicle data recorder data.

One (1) 22-00-0350 Electrical System Diagnostics - INTELEX™ PLUS Y___N___

ELECTRICAL SYSTEM DIAGNOSTICS

The apparatus shall feature on-board electrical system diagnostics and provision for off-board diagnostic service equipment.

ON-BOARD DIAGNOSTICS

On-board diagnostic indicators shall be provided to support rapid troubleshooting of the INTELEX™ PLUS based electrical power and signal system. The input and output status of each INTELEX™ PLUS system module shall be easily determined through easy to use display pages.

Switches shall be provided in the cab to allow the operator or service personnel to obtain On-Board diagnostic information from the ABS system and Engine Controller.

A troubleshooting guide shall be provided with the vehicle to assist with interpretation of the diagnostic signals.

OFF-BOARD DIAGNOSTIC PROVISION

An interface port shall be provided for service access to the INTELEX™ PLUS data bus. The diagnostic port shall be mounted inside the cab on the driver side in a location that is accessible from the ground.

One (1) 22-00-0510 Power Studs - Overhead Switch Panel, (4) Stud Switched Y___N___

POWER STUDS (OVERHEAD SWITCH PANEL)

Four (4) studs shall be provided in the overhead switch panel to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

One (1) 22-00-0520 Power Studs - Cab Dash Area, (4) Stud Switched Y___N___

POWER STUDS (CAB DASH)

Four (4) studs shall be provided in the cab dash area to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

One (1) 22-00-0530 Buss Bar - Under Officer's Seat, (4) Stud Switched Y___N___

BUSS BAR (UNDER OFFICER'S SEAT)

A four (4) stud 30 Amp buss bar with protective cover shall be provided under the officer's seat to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

One (1) Buss Bar - Under Engine Tunnel Panel, 4-Stud (Ea) Y___N___
22-00-0540

BUSS BAR (UNDER ENGINE TUNNEL)

One (1) four (4) stud 30 Amp buss bar(s) shall be provided under the rear engine tunnel panel to provide a 12 volt feed. The studs shall consist of two (2) 12 volt direct studs, switched battery stud, and grounding stud.

One (1) Dash Layout Drawing - Attacker, Split Tilt Cabs & Capital Full Tilt Cabs Y___N___
22-00-06CP

DASH LAYOUT

The Manufacturer shall furnish a dash layout drawing to the Fire Department for their review and approval. The drawing shall detail the locations for installation of radios, sirens, light switches, gauges, etc. Due to the cab dash configuration and electrical wiring design, the components shall have designated locations that each will fit. The Fire Department shall review and approve the layout during the Engineering Conference.

One (1) Pump Engagement Controls & Indicators - For INTELEX™ PLUS Y___N___
22-01-0210

PUMP ENGAGEMENT CONTROLS AND INDICATORS

A "Pump Engaged" indicator shall be provided in the driving compartment to indicate the pump shift has been successfully completed. An "OK to Pump" indicator shall be provided in the driving compartment and on the pump operator's panel to indicate that all the following conditions have been met to safely operate the pump in stationary mode:

- The pump shift is engaged.
- The parking brake is engaged.
- If the pump is driven from a transfer case PTO or auxiliary transmission PTO, the drive to the wheels in neutral.
- If the apparatus is equipped with an automatic transmission, the chassis transmission is in the correct pump gear as follows:

o If the pump is driven by a PTO after the chassis transmission gearing (e.g., split shaft PTO, transfer case PTO, etc.) the transmission is in the correct forward drive gear as noted in the shift instruction placard located in the driving compartment.
o If the pump is driven by a PTO ahead of the chassis transmission gearing (e.g. flywheel PTO, crankshaft PTO, etc.) the transmission is in neutral.

A "Throttle Ready" indicator shall be provided on the pump operator's panel. The "Throttle Ready" indicator shall indicator when the pump is in "OK to Pump" mode.

One (1) Speedometer - Additional, Officer, Digital Y___N___
22-01-1502

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OFFICER SPEEDOMETER

An additional speedometer shall be provided on the right hand side of the dash so that the officer can monitor apparatus speed. The speedometer shall be digital.

One (1) 22-03-14SA — No 12V Power Box on Rearward Engine Tunnel Required — Y___N___

Six (6) 22-03-14UQ — USB Charger Port - Kussmaul Dual Port #091-219-5 (Ea) — Y___N___

USB CHARGER PORT

Six (6) Kussmaul Electronics model 091-219-5 USB 2.4/2.4 Amp Dual Charger Ports shall be wired battery direct with a fused circuit and shall be located on the dash as follows:

Location of USB charger port shall be:

Shall be determined at pre-construction conference.

Four (4) 22-0A-5120 — Two-Way Radio Antenna Mount - Universal w/ Cable (Ea) — Y___N___

TWO-WAY RADIO ANTENNA MOUNT(S)

Four (4) universal antenna mount(s), model MATM, with 17 feet of coax cable and black weatherproof cap shall be provided for the two-way radio equipment.

Four (4) 22-0A-515A — Antenna Lead - Terminates in the Overhead Dash — Y___N___

The antenna lead shall terminate in the overhead dash. Any excess cable shall be secured in an accessible location.

Four (4) 22-0A-516A — Antenna Location - Behind Light Bar — Y___N___

The antenna location shall be installed in the cab roof, behind the light bar.

One (1) 22-0A-512Z — No Installation for Customer Furnished Antenna Required — Y___N___

One (1) 22-10-0700 — Batteries - (6) 12V, 950 CCA — Y___N___

BATTERIES

Six (6) 12V Group 31 950 CCA batteries shall be installed three each side of the cab under the rear entrance way.

Heavy-duty battery cables shall be provided to maximize power available to the electrical system.

One (1) 22-10-5200 Jumper Cable Studs - Under Driver's Side Battery Box Y___N___

JUMPER CABLE STUDS

A pair of jumper cable studs with color coded covers shall be provided under the driver's side battery storage area.

One (1) 22-11-060S Battery/Electrical Component Storage Areas - S/S, Cab (Attacker/Capitol) Y___N___

BATTERY AND ELECTRICAL COMPONENT STORAGE AREAS

Battery and electrical component storage areas shall be constructed of stainless steel with structural steel tubes at the corner mounting points and shall be located one (1) each side mounted on the vehicle frame. They shall be well ventilated and enclosed to protect against road splash and debris. Suitable provisions shall be provided for drainage.

The batteries shall be held firmly in place by providing a full frame type top clamp which encloses the battery set on all four (4) upper corner sides. The one piece clamp shall be fabricated of 3/4" angles and be held in place by four (4) "J" shaped clamping bolts placed in the corners, retained within the battery box to prevent retrieval from underside the apparatus. Battery inspection shall be provided through doors in the step area of the crew cab. Battery replacement shall be possible without tilting the cab (No Exceptions).

One (1) 22-11-0610 Battery Box Finish - Gloss Black Paint Y___N___

The whole battery box (interior and exterior) where the batteries are installed shall be painted gloss black.

One (1) 22-11-5100 Battery Mats - Turtle Tile, Non-Corrosive Y___N___

BATTERY MATS

The batteries shall be installed on a non-corrosive Turtle Tile mat.

One (1) 22-15-1400 Battery Disconnect Switch - Blue Sea 350 Amp Y___N___

DISCONNECT SWITCH - BLUE SEA 9003

A master load disconnect switch shall be provided between the battery positive buss bar and the remainder of the switched battery electrical loads on the apparatus. A green "battery on" pilot light that is visible from the driver's position shall be provided.

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One (1) single battery system switch mounted near the driver's side front entrance in a location so it may be turned off by a person standing on the ground outside the vehicle. It shall have the capacity to handle 350 amps of continuous power.

One (1) 22-15-140X — Additional Master Disconnect switch shall be provided between the batteries — Y___N___

ADDITIONAL BATTERY DISCONNECT SWITCH

An additional master disconnect switch shall be provided between the batteries and the battery positive buss bar to facilitate ease of maintenance. This disconnect shall be located near the batteries and shall be accessible when the cab is tilted.

Additional battery disconnect to be located per SO 56233 on driver's side battery box rear face

One (1) 22-15-3750 — Battery Charger - Kussmaul #091-187-12-REMOTE, AutoCharge 1200 w/Bar Graph Displ — Y___N___

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BATTERY CHARGER

There shall be one (1) Kussmaul model #091-187-12-REMOTE "Auto Charge 1200" single battery charger system installed in the vehicle's electrical system. The charger shall be fully automatic and shall maintain the truck batteries at a full charge level when connected to a 120 VAC source. Remote voltage sensing shall be provided to compensate the charger output for the voltage drop in the charging wires.

DISPLAY

A remote mounted indicator MODEL 091-199-001 shall be included which shall contain one bar graph to display the condition of the batteries. **It shall be mounted on the outside of the cab driver's side in close proximity to the shoreline inlet**

One (1) 22-15-4LDW — Charger/Compressor Location - Wall Adjacent to Side Window on Driver's Side — Y___N___

The battery charger/compressor shall be located on the driver's side wall adjacent to the side window.

One (1) 22-15-5000 — Battery Charger/Air Compressor Cover — Y___N___

BATTERY CHARGER/AIR COMPRESSOR COVER

A smooth aluminum cover shall be provided over the battery charger/air compressor. The outside finish shall match the cab interior finish.

One (1) 22-15-5350 — Non-Ejecting Shoreline Inlet - Hubbell 20 Amp, 120 VAC — Y___N___

NON-EJECTING SHORELINE INLET

A Hubbell 20 Amp, 120 VAC non-ejecting shoreline power inlet shall be provided for the battery charger. A label shall be permanently affixed at the inlet that indicates the line voltage in volts and the current rating in amps.

Painted job color

One (1) 22-20-5810 — Shoreline Inlet Location - Behind Driver's Door on Cab's Side — Y___N___

The Kussmaul Super Auto Eject Plug shall be located behind the driver's door on the cab's side.

One (1) 70-05-1928 — Receptacle w/Plug & Cord - 120V, 20 Amp for Cab Interior, Shoreline Powered (Ea) — Y___N___

120 VOLT SHORELINE POWERED RECEPTACLE(S) IN CAB INTERIOR

One (1) 120-volt, 20 amp, 3-wire receptacle(s) shall be provided in the cab interior in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

A plug and cable assembly shall be installed, connecting the battery charger/compressor to the receptacle.

The receptacle(s) shall be located near the battery charger or compressor.

One (1) 70-05-2535 — NEMA Rating - 5-20R (20 Amp) Non-Twist-Lock, Duplex — Y___N___

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Duplex.

One (1) 70-05-2720 — Receptacle Cover - Stainless Steel Wall Plate (Interior Use Only) (Ea) — Y___N___

One (1) stainless steel wall plate(s) shall be installed.

One (1) 22-15-410D — Air Compressor - Kussmaul 091-9B-1-AD, 120V, with Auto Drain — Y___N___

REDUNDANT AIR COMPRESSOR

A Kussmaul model #091-9B-1-AD "Auto Pump AC" redundant air compressor with auto

drain shall be installed. The Auto Pump shall be wired to 120 VAC shoreline. Operation shall be automatic with the pressure switch sensing the system pressure and controlling the power input. The compressor shall automatically replace air lost due to leakage in the brake system without any interference to engine mounted air compressor functions.

The auto drain shall automatically purge the water separator bowl every time the compressor cycles off.

One (1) 22-15-4LOW — Charger/Compressor Location - Wall Adjacent to Side Window on Officer's Side — Y___N___

The battery charger/compressor shall be located on the officer's side wall adjacent to the side window.

One (1) 22-15-5000 — Battery Charger/Air Compressor Cover — Y___N___

BATTERY CHARGER/AIR COMPRESSOR COVER

A smooth aluminum cover shall be provided over the battery charger/air compressor. The outside finish shall match the cab interior finish.

One (1) 70-05-1928 — Receptacle w/Plug & Cord - 120V, 20 Amp for Cab Interior, Shoreline Powered (Ea) — Y___N___

120 VOLT SHORELINE POWERED RECEPTACLE(S) IN CAB INTERIOR

One (1) 120-volt, 20 amp, 3-wire receptacle(s) shall be provided in the cab interior in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

A plug and cable assembly shall be installed, connecting the battery charger/compressor to the receptacle.

The receptacle(s) shall be located near the battery charger or compressor.

One (1) 70-05-2535 — NEMA Rating - 5-20R (20 Amp) Non-Twist-Lock, Duplex — Y___N___

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Duplex.

One (1) 70-05-2720 — Receptacle Cover - Stainless Steel Wall Plate (Interior Use Only) (Ea) — Y___N___

One (1) stainless steel wall plate(s) shall be installed.

One (1) 22-15-5500 — Shoreline starter over ride function and switch — Y___N___

SHORELINE STARTER OVER-RIDE FUNCTION AND SWITCH

Fire & Specialty Equipment Company

There will be a relay to inhibit the starter from engaging unless the shoreline is disconnected from the inlet. There shall also be a mechanics switch in dash zone #3 with a missile switch cover to override this relay should a failure occur

Label will state: "STARTER OVERRIDE"

(Ref #W0701698 SWD,SHORELINE/STARTER INTLK for concept)

One (1) 22-90-004J — Headlights - Quad, Truck-Lite LED, with Dual Light, Chrome Bezels — Y___N___

HEADLIGHTS

Front headlights shall be mounted on the front cab face to the left and right of the engine cooling intake grille. The headlights shall be quad type, rectangular Truck-Lite model 27640C/27645C 12-volt LED with bright finished trim rings and chrome bezels. The low beam headlights shall be located at the outer position.

One (1) 22-90-004X — Headlight Position - Middle — Y___N___

The headlights shall be in the middle position.

One (1) 22-90-0055 — Headlights - Daytime Running Lights — Y___N___

DAYTIME RUNNING LIGHTS

One set of the dual headlights, one each side, shall illuminate continuously in the dim mode at 80% of candela capacity while the unit is running and the parking brake is released.

One (1) 22-90-0065 — Headlights - Alternating, Flashing — Y___N___

ALTERNATING FLASHING HEADLIGHTS

The chassis high beam headlights shall flash alternately.

One (1) 22-90-006A — Alternating Flashing Headlights - Wired to Clear Warning Lights Switch — Y___N___

The alternating, flashing headlights shall be wired to the clear warning lights on/off switch.

One (1) 22-90-007A — Front Directional Dual Light Bezels, (2) Chrome-Plated — Y___N___

FRONT DIRECTIONAL DUAL LIGHT BEZEL

The front directional lights shall be mounted in a chrome plated dual light bezel located on each side of the cab front face. The dual light bezel shall match the headlight housing.

One (1) 22-90-007X — Front Directional Light Bezels Position - Uppermost — Y___N___

The front directional light bezels shall be in the uppermost position.

One (1) 22-90-008G — Front Directional Lights - (2) Whelen M62T, LED, Amber Arrow, with Amber Lens — Y___N___

FRONT DIRECTIONAL LIGHTS

There shall be one (1) Whelen M62T LED amber arrow directional signal light installed on each side of the cab front face. The light shall have an amber arrow shape with black background and shall be provided with a "flash" pattern; a "sweep" pattern shall not be allowed. Lens color shall be amber.

One (1) 22-90-0120 — No Clearance Lights Required: Provided Elsewhere — Y___N___

No clearance lights required as they are provided elsewhere.

One (1) 22-90-0140 — Marker Lights - TecNiq #S34, (2) Amber LED/Amber Lens & (7) Red LED/Red Lens — Y___N___

MARKER LIGHTS

A TecNiq S34 amber LED marker light with amber lens shall be recess mounted in a rubber sealing grommet placed in the lower front cab side, forward of the driver and officer door, on each side of the cab. The light body shall be urethane filled to ensure against moisture intrusion. These cowl mounted lights shall have 100,000 hour life and shall carry a manufacturers 10 year warranty.

Seven (7) TecNiq S34, red LED marker and clearance lights with red lens shall be installed at the rear of the body. The three light identification cluster shall be surface mounted on the rear step vertical flange. Two lights shall be placed at each lower rear body corner, facing the side. Two lights shall be placed in the upper rear body corners, facing the rear.

One (1) 22-90-031P — Side Turn/Marker Lights - T/L #60040Y, LED, Polished, Midship on Fender — Y___N___

TURN/MARKER LIGHTS

One (1) Truck-Lite model 60040Y turn/marker light shall be provided and installed on the rear fender panel below the forward air bottle compartment on each side of the vehicle. The lights shall have an amber polycarbonate lens and highly polished stainless steel mounting flange or bezel.

One (1) 22-90-0320 — Side Marker Lights - Britax #L427, LED, Long, Rear Corners — Y___N___

REAR MARKER LIGHTS

A Britax long stemmed "LED" dual faced #L427 long, marker light shall be placed at each rear corner of the body. The front lens shall be amber; the rear lens shall be red.

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One (1) 22-90-0405 — License Plate Bracket (S/S) & LED Light - Rear of Vehicle — Y___N___

LICENSE PLATE LED LIGHT & BRACKET

A stainless steel license plate bracket, painted black, shall be installed on the rear of the vehicle. Mounted on the license plate bracket shall be a chrome light bracket containing a 12 volt LED lamp that shall illuminate the license plate.

One (1) 22-90-0465 — Rear License Plate Bracket Location - As Specified — Y___N___

The rear license plate bracket shall be located as specified: **rear face of body driver's side inboard of the tail-light cluster and beneath the first folding step over the rear tailboard.**

One (1) 22-90-0500 — D.O.T. Reflectors — Y___N___

D.O.T. REFLECTORS

Reflectors shall be placed on the cab and body as required by Federal standards. An amber reflector, Signal Stat, model 32ADB, shall be placed on each side of the cab. Four (4) Signal Stat model 32DB red reflectors shall be located on the rear face and sides of the body. The reflectors shall be rectangular in shape.

One (1) 23-02-9300 — Cab Side Direct Lights - (2) Double Faced, Britax #L428, LED, Short — Y___N___

SIDE DIRECTIONAL LIGHTS

Britax model #L428, short rubber side LED directional lights shall be provided in addition to the front turn signals. One (1) light shall be mounted just above the front fender on each side of the cab. Lamp shall have an amber plastic lens at front and a red lens facing rear.

One (1) 23-03-0010 — Configuration of Brake/Turn/Backup/Warning Lights at Rear of Apparatus — Y___N___

BRAKE/TURN/BACKUP/WARNING LIGHTS CONFIGURATION

The brake, turn, backup and warning lights shall be located at the rear of the apparatus. Each light shall be mounted horizontally in a vertical configuration, one light atop the other.

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The order of lights shall be as follows:

Top:	Brake
Second from top:	Turn
Third from top:	Back-up
Bottom:	Warning

One (1) 23-03-0140 — STBU Lights - Whelen M6 Series, Colored Lens — Y___N___

STOP-TURN-BACK UP LIGHTS

Two (2) Whelen M6 series LED red brake/tail lights, model M62BTT, with red outer lens, shall be mounted at the rear of the apparatus, one on each side. All brakes lights shall be programmed for "steady burn" operation in compliance with FMVSS No. 108.

Two (2) Whelen M6 series Super-LED amber turn lights, model M62T, with amber outer lens, shall be mounted at the rear of the apparatus, one on each side. They shall be provided with a "flash" pattern; a "sweep" pattern shall not be allowed.

Two (2) Whelen M6 series clear Super-LED back up lights, model M62BU, shall be mounted at the rear of the apparatus, one on each side.

One (1) 23-03-0770 — Bezels - (2) Whelen #M6FCV4, 4-Lamp, f/ M6 Series Stop/Turn/Backup — Y___N___

BEZELS

Two (2) Whelen model #M6FCV4 vertical 4-lamp, polished chrome housings shall be provided for the M6 Series rear stop/tail, turn, and backup lights and lower level warning lights.

One (1) 23-03-0410 — 3rd Additional Brake Light w Chrome Flange - Whelen PS Series — Y___N___

THIRD BRAKE LIGHT

One (1) Whelen, Model PSR01FCR, LED Third brake strip will beprovided and mounted above the rear compartment doors and centered.

One (1) — Rear Spot/Floodlights - (2) HiViz FT-WL3500-FT-B LED, Black, Cab Switch — Y___N___

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23-04-042B

REAR PICKUP LIGHTS

Two (2) HiViz FT-WL3500-FT-B LED lights, with 7 white LEDs, shall be installed at the rear of the apparatus. The 12VDC, 2.92 amp, 3696 lumen light shall have 10 degree spot and 60 degree flood optics, a switch, and a black housing.

A switch shall be provided in the cab.

One (1) Reverse Enable Switch Y___N___
71-Y0-0480

REVERSE ENABLE SWITCH

A reverse enable switch shall be installed on the cab dash which when activated shall allow the rear scene lights to engage any time the apparatus transmission is placed into reverse. This is in addition to the standard switch which shall allow the driver to engage the lights anytime the battery is on.

One (1) Light Activation - Step Lights Y___N___
23-05-0010

LIGHT ACTIVATION

The cab step lights shall be activated with the cab door open switch.

The step lights on the body shall be activated with the parking brake in conjunction with the marker lights.

One (1) Black Out Switch Y___N___
23-05-0034

PARKING LIGHTS OVRE_RIDE SWITCH

A Momentary default on tep light over-ride switch shall be provided. Step Lights will engage with the park brake marker light function. There shall be a switch that resets with the ignition that will alow the step lights to be tuned off in the cab for "blacked out situations"

Parking lights over-ride switch to be labeled "BLACKOUT SWITCH"

One (1) Step Lights - (4) Cab, Whelen TOCACCCR, LED (Attacker/Capitol) Y___N___
23-05-0035

CAB STEP LIGHTS

Four (4) Whelen model TOCACCCR, LED step lights shall be provided, one (1) at each cab entrance door.

Four (4) Step Light Flange - Whelen, Grommet Y___N___
23-05-1420

The step lights shall have a grommet.

One (1) 23-05-0210 — Step Lights - (4) Body, TecNiq Eon, LED, Surface Mount — Y___N___

BODY STEP LIGHTS

Four (4) TecNiq Eon, LED horizontal step lights with flanges shall be surface mounted, one (1) on each side of the rear step area to illuminate the rear step and one (1) on each side on the forward face of the side compartments.

Four (4) 23-05-1412 — Step Light Flange - TecNiq, Polished Stainless Steel — Y___N___

The flange for the step lights shall be polished stainless steel.

One (1) 23-05-2020 — Light Activation - Ground Lights, w/Rocker Switch, Req INTELEX™PLUS — Y___N___

LIGHT ACTIVATION

A rocker switch shall be provided in the cab, that once activated, shall turn on all the ground lights under every cab and crew cab door and all the ground lights on the body.

In addition, the ground lights under the cab shall come on any time a cab door is opened, regardless of the perimeter light switch position.

One (1) 23-05-2111 — Ground Lights - (4) Cab, TecNiq #E10 LED — Y___N___

GROUND LIGHTS

Four (4) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the cab, per NFPA requirements.

One (1) 23-05-2121 — Ground Lights - (2) Body Rear Step, TecNiq #E10 LED — Y___N___

GROUND LIGHTS

Two (2) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the body rear step, per NFPA requirements.

One (1) 23-05-2165 — Ground Lights - (2) Side Mount Operator Stand, TecNiq E10, LED — Y___N___

GROUND LIGHTS

Two (2) weatherproof TecNiq E10 LED ground lights shall be provided underneath the pump enclosure, one each side, per NFPA requirements.

One (1) 23-05-2181 — Ground Lights - Additional, TecNiq #E10 LED (Ea) — Y___N___

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GROUND LIGHTS

In addition to the standard, NFPA required ground lights, one (1) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the vehicle.

One (1) 23-05-219B — Additional Ground Light Location - As Specified — Y___N___

The additional ground light location shall be as follows: under front bumper

One (1) 23-05-301C — Work Light - (1) Engine Compartment, Whelen 3SC0CDCR, ATT/CAP Only — Y___N___

ENGINE COMPARTMENT WORK LIGHT

One (1) Whelen 3SC0CDCR engine compartment work light shall be provided. The light shall illuminate the fluid dip sticks. The light shall activate with the cab tilt or with the switch. The single light shall be installed on the right side of the opening.

One (1) 23-05-3150 — Work Lights- (2) Pump Module, TecNiq E18, LED — Y___N___

PUMP MODULE WORK LIGHTS

Two (2) TecNiq E18-WCS0-1 LED lights shall be installed, one (1) on the left side behind the master gauge panel and one (1) on the right side behind the hinged panel. Each light shall have a switch on it.

One (1) 23-05-3185 — Work Light - Pump Module Open Bin, TecNiq E10 LED (Ea) — Y___N___

PUMP MODULE OPEN BIN WORK LIGHT(S)

One (1) TecNiq E10 LED light(s) shall be installed inside the open bin to illuminate the work area. The light(s) shall be mounted on the back wall of the open bin, high up in an area clear of open bin components such as a generator or reel. The light shall be switched with the pump panel lights.

One (1) 23-11-1000 — Cab Dome Lights - (4) Weldon #8086-6978-68, Red/Clear — Y___N___

INTERIOR CAB DOME LIGHTS

Four (4) Weldon 8086-6978-68 red/clear incandescent lights with push button shall be mounted in the cab ceiling. Two (2) in front (driver & officer) and two (2) in the crew cab. The red light shall be in the forward position. All lights shall be controlled by a switch by the lens.

One (1) 23-11-1410 — Door Switches - Dome Lights, Automatic — Y___N___

AUTOMATIC DOOR SWITCHES

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Automatic door switches shall be provided for the cab dome lights. All white dome lights shall activate with any cab door opening.

Two (2) 23-12-3010 — Hand Light - Streamlight, Fire Vulcan® #44451, LED/LED (Ea) — Y___N___

HAND LIGHTS

Two (2) Streamlight Fire Vulcan® LED model 44451 rechargeable hand light(s) with quick release shoulder strap(s) and a 12 volt DC direct wire charging rack shall be provided. The hand light shall be orange in color and feature a C4 LED primary bulb and two(2) blue LED taillights. The momentary toggle switch has 8 different modes of operation.

Two (2) 23-12-3S80 — Hand Light Location - Identified at Time of Order for Installation — Y___N___

The hand lights and charging rack, if applicable, shall be located at time of order for installation.

One (1) 23-12-301X — Pelican #9430 LED Light (shall be furnished and shipped loose) — Y___N___

PELICAN #9430 LED LIGHT

A Pelican #9430 LED light system shall be furnished and shipped loose.

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Seven (7) 23-25-0150 — Exterior Compartment Lights - (2) ROM LED Strips, Vertical Mount (Ea Pair) — Y___N___

EXTERIOR COMPARTMENT LIGHTS - (2) LED STRIP(S)

Seven (7) exterior compartment(s) shall have a ROM LED lighting strip installed on both sides of the door. The lighting strips shall be mounted vertically along both sides of the door framing in all specified body compartments. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door frame, shall be used to activate the lights.

Specify which compartment(s) shall receive lighting:
LS1,LS2,LS3
RS1,RS2,RS3
REAR

One (1) 24-10-WFE6 — Lightbars - (2) Whelen #F4N MINI, 21.5", LED, Side Facing — Y___N___

MINI LIGHTBAR

Two (2) Whelen model F4N MINI Mini Freedom™ IV LED 21.5" lightbars shall be provided and installed on the cab roof, facing outward to the sides. Each lightbar consist of two (2) Linear-LED® heads with two (2) clear LED located in the center forward facing and one (1) red LED to the outside facing the side. The lightbar shall also be equipped with two (2) red corner Linear-LED® lights in the front corners.

One (1) 24-10-WFET — Side Facing Red LED Shall be Positioned Toward the Cab Rear — Y___N___

The one red LED on the side of the lightbar shall be positioned toward the cab rear.

One (1) 24-10-WFEY — Mini Lightbar Locations - on the Forward Cab Portion above Forward Doors — Y___N___

The mini lightbars shall be located on the forward portion of the cab above the forward doors.

Two (2) 24-15-3020 — Lightbar Mount - Whelen MKEZ7, 1.5" high, on Mini Lightbars — Y___N___

The Whelen mini lightbar shall be mounted using a 1.5" high mount, model MKEZ7.

One (1) 24-UN-LNCC — Lens Color - Clear — Y___N___

The lens color shall be clear.

One (1) 24-10-WFG4 — Lightbar - Whelen #F4N Red/Clear, 72" LED — Y___N___

LIGHTBAR

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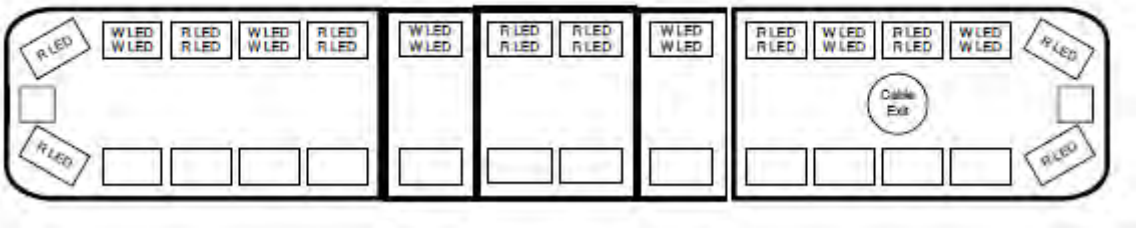
A Whelen Edge® Ultra Freedom™ IV LC series LED 72" lightbar shall be provided on the cab roof. Six (6) red Linear Super-LED® lightheads and six (6) white Linear Super-LED® lightheads shall be located on the forward face and there shall be a red Linear Super-LED® light head in each of the four (4) corners. The lens shall be clear.

Configuration



_____

_____

One (1) 24-15-3022 — Lightbar Mount - Whelen MKEZ7, 1.5" high, on Lightbars — Y___N___

The Whelen lightbar shall be mounted using a 1.5" high mount, model MKEZ7.

One (1) 24-20-WLB2 — Beacons - (2) Whelen #B6MMRAP, Super-LED®, Red/Amber — Y___N___

UPPER REAR WARNING LIGHTS

Two (2) Whelen model B6MMRAP lights shall be provided on the upper rear of the apparatus. The upper level shall consist of a red Super-LED® rotator light. The lower level shall consist of an amber Linear Super-LED® light. The flasher shall have the factory set SignalAlert™75 flash pattern.

One (1) 24-20-Y010 — Beacon Locations - (2) Directly Atop Body Rear — Y___N___

The rear beacons shall be installed directly atop the body.

Eight (8) 24-30-WLM5 — Perimeter - Whelen #M6R Super-LED®, Red, with Red Lens (Ea) — Y___N___

WARNING LIGHTS

Eight (8) Whelen model M6R red Super-LED® light(s) with flange(s) and red lens(es) shall be provided on the apparatus. The flash pattern of the light(s) shall be the factory set SignalAlert™ 75 flash pattern.

Eight (8) 24-UZ-FL10 — Light Flange - Chrome Plated — Y___N___

The light flange shall be chrome plated.

Four (4) 24-30-WL6X — Perimeter - Whelen #6RBRC Super-LED® ROTA-BEAM™, Red with Clear Lens (Ea) — Y___N___

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WARNING LIGHTS

Four (4) Whelen model 6RBRC red Super-LED® ROTA-BEAM™ warning light(s) shall be installed on the apparatus.

The flash pattern of the light(s) shall be the factory set Rotator 75 flash pattern.

Four (4) 24-UZ-FL10 — Light Flange - Chrome Plated — Y___N___

The light flange shall be chrome plated.

One (1) 24-3L-0100 — Standard Perimeter Warning Light Locations - Custom Apparatus — Y___N___

Location of each perimeter warning light shall be:

Zone A Upper:
72" Front light bars

Zone A lower:
(2) #600 Red Rotabeam lights inboard of turn signals
(2) #600 Red Rotabeam Lights beneath headlights

Zone B/D upper:
(2) side facing lightbars on cab

Zone B/D lower:
(2) #M6 Red lights on side of bumper
(2) #M6 Red lights on side of cab, to rear of axle center, near crew door hinge
(2) #M6 Red lights on body fender

Zone C upper:
(2) Rear beacons

Zone C lower:
(2) #M6 Red lights below the backup lights

One (1) 24-80-WLE5 — Traffic Adv - Whelen #DTA8A, TIR3™ Super-LED®, Amber, 30.36" — Y___N___

TRAFFIC ADVISOR™

A Whelen model DTA8A Dominator™ series Traffic Advisor™ shall be provided. The light bar shall be 30.36" long and have eight (8) TIR3™ Super-LED® amber lamps. All outer lenses shall be clear. It shall be mounted in an extruded aluminum housing. The lights shall be controlled by a TADCTL1 controller mounted in the cab.

One (1) — Traffic Arrow Control Head - Recessed In Upper Dash — Y___N___

24-81-CTUD

The control head for the traffic arrow shall be recess mounted in the upper dash.

One (1) Traffic Advisor™ Wiring - Battery Switched Y___N___
24-81-CTX6

The Traffic Advisor™ shall be wired battery switched.

One (1) Installation - Traffic Advisor, Recessed in Body Y___N___
24-82-IN0R

The traffic advisor shall be recessed in the upper portion of the rear face of the body. The recess for the light shall be constructed of mill finish aluminum.

One (1) Electric horn - Single Y___N___
25-00-0100

AUDIBLE WARNING DEVICES

One (1) automotive electric horn controlled by the steering wheel horn button shall be provided.

One (1) Backup Alarm - Ecco SA914, Auto DBA Adjust Y___N___
25-01-0600

BACKUP ALARM

There shall be an Ecco SA914 electronic backup alarm provided that shall sound when the truck is placed in reverse to warn persons near or on the apparatus. The alarm shall be automatically adjustable and shall maintain a sound level of a minimum of 5 decibels over the environmental noise level. Sound level range shall be 87 to 112 decibels.

One (1) Air Horns - Dual, Grover Y___N___
26-00-0035

DUAL AIR HORNS

Two (2) Grover Stuttertone chrome air horns shall be furnished. A pressure protection valve shall be installed in-line to prevent loss of all air from the vehicle air brake system. The air horns shall range from 18" to 24" in length and shall be as long as possible, dependent upon other selected options and extension length.

One (1) Air Horn Locations - Both in Center of Bumper Y___N___
26-00-006C

Both of the air horns shall be located in the center of bumper.

One (1) Air Horn Dual Lanyard - 2 Switches in Rear, Driver & Officer Sides, Att/Cap Only Y___N___
26-00-0350

AIR HORN DUAL LANYARDS

The air horn(s) shall be activated by one (1) lanyard pull cord for the driver and by one (1) lanyard pull cord for the officer which shall both be anchored on the vertical face of the

overhead dash outboard each side and shall end at a switch located at the rear of the center overhead, one on the driver's side, one on the officer's side. The lanyard pull cords shall be composed of a chain encased in a plastic tube.

One (1) 26-10-7420 — Electronic Siren - Whelen 295SLSC1, 100/200 Watts, Removable Microphone — Y___N___

WHELEN SIREN

A Whelen model 295SLSC1 electronic siren shall be provided. The siren has a selectable output of 100 or 200 Watts. The microphone shall be removable.

The siren head shall be wired battery switched. Auxiliary activation switches shall only be active when the emergency master and ignition are activated.

One (1) 26-10-860A — Electronic Siren Head Location - Upper Dash — Y___N___

The electronic siren head shall be located in the upper dash.

One (1) 26-10-8Z80 — Mic Clip Location - Determine at Final Inspection — Y___N___

The location of the siren mic clip shall be determined at the final inspection.

Two (2) 26-11-FE1E — Siren Speaker - Federal Signal #ES100, with Flame Grille, In Bumper (Ea) — Y___N___

SIREN SPEAKER(S)

Two (2) Federal Signal Model ES100 compact 100 watt speaker(s) shall be provided and recess mounted in the front bumper. Opening in the bumper for the speaker shall be covered with a Seagrave "Flame" grille.

Four (4) 26-11-Y02B — Two Speakers Locations - One on each Side of Bumper — Y___N___

There shall be a speaker located one (1) each side of the bumper.

One (1) 26-15-4200 — Mechanical Siren - Federal Signal Q2B®, on Gravel Pan — Y___N___

MECHANICAL SIREN

A Federal Signal Model Q2B® siren with chrome plated housing shall be mounted on the front bumper extension as directed.

The siren activation switches shall only be active when the emergency master is activated.

One (1) 26-15-461R — Q2B® Siren Location - Right Side of Gravel Pan — Y___N___

The Federal Signal Q2B® siren shall be mounted on the right side of the gravel pan.

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Two (2) 26-15-5985	Mechanical Q2B® Foot Switch - Linemaster® #632-S (Ea)	Y___N___

MECHANICAL Q2B® FOOT SWITCH

Two (2) Linemaster® Model 632-S momentary foot operated switch(es) to activate the mechanical Q2B® siren shall be installed on the toe board of the cab floor.

Two (2) 26-15-7015	Foot Switch Shall be Deactivated When the Parking Brake is Set	Y___N___

The foot switch shall be deactivated when the parking brake is set.

Two (2) 26-15-7034	Foot Switch Locations - Driver's Side OB & Officer's Side, IB Position on Floor	Y___N___

A foot switch shall be located on the driver's side, outboard of the steering column and on the officer's side floor, inboard position.

One (1) 26-15-598K	Q2B Siren Brake Rocker Switch Location - Driver's Side	Y___N___

Q2B BRAKE ROCKER SWITCH

A siren brake rocker switch shall be installed in the cab, at the driver's side switch panel, properly labeled.

One (1) 26-15-5992	Q2B® Siren Activation - Rocker Switch, Officer	Y___N___

The Federal Signal Q2B® shall be activated by a rocker switch on the officer's side dash.

One (1) 26-15-6025	Q2B® Siren Master Switch, Driver's Side	Y___N___

A master switch for the Federal Signal Q2B® siren shall be provided under the driver's side dash. Activation of the master switch shall remove all power to the solenoid.

One (1)	== Op. Stand - Custom Side Mt. Pumper - 0.000 ==	Y___N___
One (1) 30-00-0048	Side Mount Operator Stand Shall Be 48" Wide	Y___N___
One (1) 30-00-SL2A	Operator Stand - 48", Side Ctrl, S/S, w/ (2) 1-3/4" Low Crosslay Beds	Y___N___

OPERATOR STAND

A 48” wide modular operator stand with side mount controls, shall be installed between the cab and the apparatus body.

The operator stand shall be independently mounted and furnished with flex joints between the cab and the body to allow for flexure of the chassis frame during road travel. (No exceptions to this requirement). The operator stand substructure shall be fabricated of 304 stainless steel structural shapes and formed 304 stainless steel plate and shall also support the side running boards. It shall be installed on the chassis with a four point isolator arrangement that allows it to flex independently of the chassis frame. A Tech Products rubber isolator shall be used at each mounting point for this purpose. The substructure, including the pump and plumbing shall be removable from the vehicle as one complete unit. The aluminum ceiling of the operator stand shall be fastened with stainless steel machine screws so that it may be removed for access to the pump and piping as required.

Removable 304 stainless steel panels, full height and width, shall be provided on both sides of the operator stand and a stainless steel pump access door shall be provided on each side of the vehicle. Each door shall be hinged along the top and held closed with compression latches or held open with two (2) gas struts.

CONTROL PANEL

All pump controls and gauges shall be located on the left side of the apparatus on a stainless steel panel with color coded identification plates.

The following controls and gauges shall be located on the control panel for convenient operation:

- All discharge controls
- Electronic engine throttle or governor
- Primer control
- Tank fill control
- Tank to pump control
- Master discharge gauge
- Master intake gauge
- 1/4" NPT Allen head pressure and vacuum test plugs
- Auxiliary cooler control
- Master pump drain control
- Individual pressure gauges
- Water level indicator

CROSSLAY BEDS

There shall be two (2) crosslay hose beds provided at the top front of the operator stand. The bottom of each crosslay shall be a maximum of 43" from the running board stepping surface. Each hose bed shall have the capacity to carry a minimum of 200 feet of pre-connected 1-3/4" double jacketed hose.

The interior sides of the hose bed shall be constructed of 304 stainless steel and shall have a DA finish. The interior of the hose beds shall be smooth and free from all sharp projections which might damage hose.

One adjustable crosslay hose bed partition (divider) shall be provided, constructed of 3/16" thick 5052-H32 aluminum alloy plate. It shall have a DA finish. The divider shall be fully adjustable at each end of the hose bed. The divider shall be held in place by two (2) bolts at each end of the partition's bottom flange.

The bottom of the crosslay hose beds shall be provided with a removable aluminum pan, with ventilation holes, for the stored hose. The pan shall be provided with a DA finish.

OPEN BIN

A 31.63” wide open bin area shall be provided aft of the crosslay beds. The outward facing walls shall be vented as necessary for equipment such as a generator or other device which requires air flow and is located within the open bin.

One (1) 30-02-5090 Open Bin Height - 15.75" Y___N___

The walls surrounding the open bin shall be 15.75” high.

One (1) 30-02-7010 Operator Stand Exterior Finish - Side Mount, Brushed S/S Y___N___

OPERATOR STAND EXTERIOR FINISH

Pump panels, on both sides of vehicle and including the gauge panel and inspection doors, shall be brushed stainless steel. The outward facing exterior stainless steel surfaces of the open bin, if present, shall be also be brushed.

One (1) 30-05-48LA Running Board - 48", LS, ATP, NA on Aerials Y___N___

LEFT SIDE RUNNING BOARD

The left side running board shall be made of 3/16" aluminum tread plate. Two (2) supports shall extend from the operator stand framing to securely support the running board. The outer edges of the running boards shall be double flanged, i.e. formed down and in.

An air space shall be provided between the aluminum running board, the body and the operator stand to prevent moisture and debris from being trapped between these components.

One (1) 30-05-48RF Running Board - 48", RS, ATP, with Hose Well, NA Aerials Y___N___

RIGHT SIDE RUNNING BOARD WITH HOSE WELL

The right side running board shall be made of 3/16" aluminum tread plate. Two (2) supports shall extend from the operator stand framing to securely support the running board. The outer edges of the running boards shall be double flanged, i.e. formed down and in.

An air space shall be provided between the aluminum running board, the body and the operator stand to prevent moisture and debris from being trapped between these components.

There shall be one (1) hose well recess mounted in the running board. It shall be a minimum of 9" wide x 38.00" long x 9" deep. Drain holes shall be provided in all four (4) corners. Black Dri-Dek® shall be provided in the well.

One (1) Retaining Strap - Seat Belt Paddle Latch Buckle for Running Board Hose Well Y___N___
30-05-X020

RETAINING STRAP

A black polypropylene strap with a seat belt paddle latch buckle shall be provided for the running board hose well. It shall be permanently attached on the inboard and outboard side of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops.

One (1) Pump Mount Bracket - for Waterous Pump and 48" Operator Stand Y___N___
30-06-0W48

PUMP MOUNT BRACKET

A set of mounting brackets shall be used to mount the operator stand and the water pump as one complete module to the apparatus chassis. This system shall be mounted at four points to the chassis frame and shall incorporate flexible isolators to absorb stresses from chassis twisting and vibrations.

One (1) Grab Rails - (2) 8" Knurled Aluminum, on Operator Stand, Next to Crosslay Y___N___
30-12-001A

GRAB RAILS

An 8" knurled aluminum grab rail shall be provided on the right and left side of the operator stand, next to the hinged access door on the side of the door next to the crosslay or transverse crossly compartment, if present.

One (1) Pump Panel Labels - Custom Y___N___
30-12-0020

PUMP PANEL LABEL COLOR CHART

Color and verbiage shall be specified by customer utilizing the OEM color chart prior to the end of the time of order. Any label not noted is at the discretion of the manufacturer.

Innovative Controls warrants their pump panel labels for 25 years against discoloration and fading.

One (1) 30-12-0090 Pump Panel Layout Drawing Option #2 Y___N___

PUMP PANEL LAYOUT DRAWING OPTION #2

A drawing showing the layout of the pump panel shall be provided prior to building of the apparatus. The drawing shall include approximate locations of the gauges and control handles as specified.

The layout shall include a view of both sides of the pump house and all applicable controls, gauges and nameplates.

The customer shall come to the pre-con prepared to discuss panel layout with the manufacturer's pump and piping engineer.

The layout shall be generated upon engineering of the order and shall be based upon realistic capabilities of the manufacturer and customer instruction provided at the pre-construction conference. The drawing must be returned within seven (7) working days of receipt from Engineering.

Any alterations requested after the drawing has been sent to the customer for review, taking over an hour to make, shall be charged to the customer at an additional $125 per hour and based on the changes may affect the promised delivery time.

One (1) 30-12-0110 Pump Panel Lights - (4) TecNiq E10 LED, Side Mount Y___N___

PUMP PANEL LIGHTS

The driver's side of the operator stand shall have three (3) TecNiq E10 LED lights located beneath light shields to illuminate the pump panel controls and gauges. The officer's side shall have one (1) TecNiq E10 LED light beneath the light shield.

One (1) 30-12-0410 Pump Panel Light Activation - 1 Light by Pump Shift, Side Mount Y___N___

PUMP PANEL LIGHT ACTIVATION

One (1) of the lights on the driver's side of the operator stand over the master gauge panel shall be activated when the pump is engaged.

One (1) 30-12-0490 Light Switch - Pump Panel Y___N___

PUMP PANEL LIGHT SWITCH

A switch on the pump panel shall activate the pump panel lights not already activated by either the pump engaging or the marker/ground lights & parking brake combination.

One (1) 30-12-1120 ATP Covers - Crosslay Atop Pump Enclosure Y___N___

CROSSLAY COVER

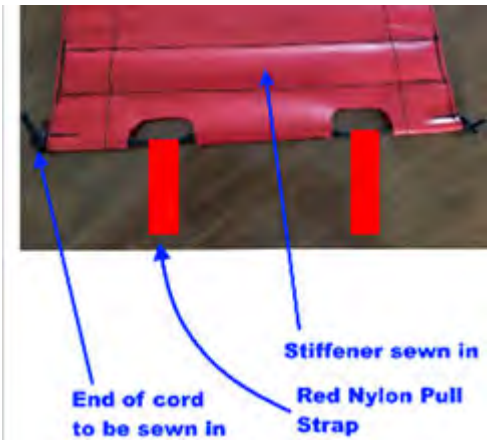
There shall be an aluminum cover for the crosslay. The cover shall be constructed of 3/16" aluminum tread plate and be hinged with a stainless steel piano hinge. The cover shall be hinged at the front of the hose bed and shall be provided with a rubber bumper on each end to prevent cover from contacting the cab.

One (1) 30-12-112B Vinyl End Flaps - Lift-Up w Shock Cords, Crosslay ATP Cover Y___N___

CROSSLAY END FLAPS

Weighted covers shall be provided for the ends of the crosslay hose beds. The lift-up covers shall be made of 20 oz. per square yard polyester coated with a urethane top coat (vinyl). The vinyl covers shall be permanently attached to the ATP cover. A reinforcement stiffener bar shall be installed near the bottom. A shock cord shall be stitched into the bottom of the cover, without external knots. Two (2) orange/red nylon pull straps shall be connected to the shock cord, as diagrammed below. Two (2) pegs on the crosslay pan lip shall be installed to catch and hook the shock cord.

This cover combination shall restrain the hose in the crosslay from unintentional deployment while the vehicle is underway in normal operations.



_____

One (1) 30-12-112K Vinyl End Flaps Cover Shall be Black in Color Y___N___

The vinyl end flaps cover shall be black in color. Color number of the vinyl is 705-1075.

One (1) 30-12-1135 Hold Open Device for Crosslay ATP Cover Y___N___

HOLD OPEN DEVICE

A hold open device shall be installed on the crosslay aluminum tread plate cover.

One (1) 30-12-2010 Crosslay ATP Cover - Yellow Perimeter Line Y___N___

YELLOW PERIMETER LINE

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of the cover shall be marked with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

One (1) 34-16-0010 Crosslay Discharges - (2) 1-1/2" with 2" Plumbing, with Push-Pull Valves Y___N___

CROSSLAY DISCHARGES

Two (2) 1-1/2" discharges shall terminate in the crosslay hose beds. Each shall be plumbed with 2" high pressure hose and/or piping and a 2" ball type brass valve, terminating with a 1-1/2" NST 90 degree swivel outlet in each hose bed. The valve control for each crosslay discharge shall be installed on the pump operator's panel.

One (1) 31-00-0400 Pump - Waterous, 1500 GPM, Single Stage, CSU Y___N___

WATEROUS PUMP

Pump shall be a Waterous CSU single stage 1500 GPM midship mounted centrifugal type, carefully designed in accordance with good modern practice. The pump shall be tested at the manufacturer's facility and certified by an independent testing organization.

Pump shall be NFPA 1901 current version compliant.

The pump shall be designed with a two-piece, horizontally split body with intake and discharge passageways in a single casting and on the same level.

The casing shall be two-piece, horizontally-split, high-tensile, close grained gray iron. All passageways shall be carefully matched to assure the very best hydraulic flow characteristics.

The wear rings shall be bronze, reverse-flow, labyrinth-type and replaceable.

The bronze impellers shall be balanced both mechanically and hydraulically for vibration-free operation. Flame plated impeller hubs shall be standard to assure longer life

despite the presence of abrasives in the water supply.

The impeller shaft shall be heat-treated stainless steel that is ground at all critical areas and polished under packing. The two-piece design shall allow for separation of the transmission from the pump without disassembling either component.

Three deep-groove anti-friction ball bearings shall be located outside the pumping chamber to give support and proper alignment to the impeller shaft assembly. The bearings shall be oil or grease lubricated and shall be completely separate from the water being pumped. They shall be protected by seal housings, flinger rings and oil seals.

Flinger rings shall be located on the impeller shaft between the seal housings and bearing housings. They shall provide added protection and keep water and foreign matter out of the bearings.

PUMP TRANSMISSION

The Waterous C20 pump transmission shall have a high-strength, aluminum, three-piece, horizontally-split housing and a high-strength involute form chain drive. It shall have a constant-mesh, two-position sliding collar that engages all teeth simultaneously with an internal locking mechanism to provide a positive lock in PUMP or ROAD position.

One (1) Pump Packing - Graphite Y___N___
31-01-0210

PUMP PACKING

Bearings to be protected from water and sediment by stuffing boxes with square graphite rings of packing at each end of impeller shaft. Packing to be held in place by split bronze glands which are fully removable and adjustable. Replaceable bronze wear rings to be provided on the pump.

One (1) Pump Shift - Waterous, Three-Position, Electric/Air Y___N___
31-01-0530

PUMP SHIFT

An air operated shift system shall be provided that allows the shift arm position to be changed by means of an in-cab mounted switch. It shall engage either the pump drive gear or the truck drive shaft gear. A three-position electric over air toggle switch shall be provided.

One (1) Relief Valve - Intake Pressure, Waterous (Non-Pilot) Y___N___
31-01-0735

INTAKE PRESSURE RELIEF VALVE

A 2-1/2" Waterous non-pilot operated intake relief valve shall be installed to the pump intake manifold. It shall have a minimum pressure adjustment of 50 to 250 PSIG. The

surplus water shall be plumbed to the underside of the truck away from the operator.

One (1) 31-01-079C — Relief Valve Shall be Preset to 150 PSI — Y___N___

The relief valve shall be preset to 150 psi.

One (1) 31-01-0820 — Pump Overheat Protection System - Waterous OPM — Y___N___

OVERHEAT PROTECTION MANAGER (OPM)

A Waterous Overheat Protection Manager (OPM) shall be installed to act as a safety device by releasing hot water from the discharge area of the pump to the ground.

The OPM consists of a valve that opens when the water in the pump reaches 140° F and a warning light that is triggered by a thermal switch when the water in the pump reaches 180° F.

The warning light acts as an additional protection device if the temperature inside the pump keeps rising although the valve is open. The OPM valve and switch are both mounted on two 1/2" tapped holes located near the center discharge area of the pump.

One (1) 31-01-108F — Priming Pump - Trident AirPrime™ with Dual Control for Front Inlet — Y___N___

PRIMING PUMP

A Trident Model #31.001.11 multi-location air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,690 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with ¾" NPT connection to the fire pump.

A Class 1 quarter turn 1/4" drain valve shall be provided and labeled on the operator's panel.

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

PERFORMANCE, SAFETY AND NFPA COMPLIANCE

The priming system shall be capable to a vertical lift to 22 inches of mercury and shall be fully compliant to applicable NFPA standards for vertical lift. The system shall create vacuum by using air from the chassis air brake system through a three-barrel multi-stage

internal “venturi nozzles” within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

AIR FLOW REQUIREMENTS

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

PRIMER CONTROLS

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

One (1) additional "push to prime" remote primer control shall be installed on the panel for the front intake. The additional control shall operate the air primer to pre-prime and may be used to remove air from the auxiliary intake piping and hose, while the fire pump is operating.

POWER REQUIREMENTS

To reduce the electrical power requirements on the fire apparatus the priming system shall be air powered. The system shall not require annual tear-down and maintenance, an electric motor or solenoid, electrical wiring, lubrication, belt drive, or clutch assembly.

WARRANTY

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

One (1) Pressure Governor - FRC, PumpBoss Y___N___
31-01-1220

PRESSURE GOVERNOR and MONITORING DISPLAY

Fire Research PumpBoss PBA400 series 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 6-3/4" high by 4-5/8". The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Engine oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on a dot matrix message display
- Throttle ready LED.

A 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 module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

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 and monitoring pressure display shall be programmed at installation for a specific engine.

One (1) 31-01-2020 Auxiliary Engine Cooling System Y___N___

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system shall be installed to permit use of water from the discharge side of the fire pump to reduce the temperature of the antifreeze solution circulating through the engine cooling system.

One (1) 91-75-0500 Warranty - Waterous, Pump, 7 Yr, Parts Only Y___N___

WATEROUS WARRANTY

The pump shall be warranted by Waterous to the original buyer that the pump is free from defects in material and workmanship under normal use and service for a period of seven (7) years from the date the product is first placed in service, or seven and one-half (7-1/2) years from the date of shipment by Waterous, whichever period shall be the first to expire; provided the Buyer notifies Waterous, in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be nonconforming with the aforesaid warranty. This warranty covers parts only. See warranty certificate for complete details.

One (1) 31-01-0580 Pump Shift Manual Override Y___N___

PUMP SHIFT MANUAL OVERRIDE

A manual pump shift override shall be provided.

One (1) 31-01-0590 Transmission Lock up - Pump Shift Activation Y___N___

TRANSMISSION LOCK UP

The direct gear transmission lockup for the fire pump operation shall engage when the pump shift control in the cab is activated and the transmission shift is changed to “Drive”.

One (1) 31-01-2110 Pump Piping - S/S Pipe, Discharge Manifold and HP Hose, Hydrotested Y___N___

PUMP PIPING –STAINLESS STEEL, MANIFOLD AND HIGH PRESSURE HOSE

All suction and discharge lines shall use schedule 10 stainless steel pipe or heavy duty pressure/vacuum hose with stainless steel end fittings. Sweat soldered copper tubing is not acceptable. Where vibration or chassis flexing may damage or loosen piping, the pipe shall be equipped with Victaulic or rubber couplings. All discharge and gated inlet lines to drain through individual drain valves. All individual drain lines are to be extended to drain

below chassis frame.

A stainless steel discharge manifold shall be used to feed the discharges, 2-1/2” or less, as required by the plumbing layout.

All discharge caps on the apparatus 1-1/2” or larger shall be vented (except for the aerial rear inlet/outlet).

All threaded fittings shall be sealed with a heavy duty Teflon anaerobic pipe sealant. It shall be in a liquid form with a consistency similar to grease. Teflon tape shall not be acceptable. It shall be designed to prevent corrosion between the mating surfaces and to allow for easy disassembly of the joints if necessary. Permabond shall manufacture with a trade name of Permalok.

All water carrying pressure gauge lines are to be of flexible tubing to prevent breakage from vibration. All suction inlets and discharge outlets shall be equipped with National Standard Threads (NST).

The entire pump and plumbing system shall be tested in accordance with the current version of NFPA 1901.

One (1) Drain Valve - Master Pump, Brass/S/S, with Sealed Port Y___N___
31-01-2120

MASTER DRAIN - FIRE PUMP

A master drain valve shall be provided and installed. The drain assembly shall be constructed of brass and stainless steel with individually sealed ports for low point drainage of the fire pump and auxiliary devices.

One (1) Drain Valve - Line, Innov.Controls for Pump Panel Drains /Class 1 for Other Y___N___
31-01-2135

DRAINS

An Innovative Controls 3/4" quarter turn ball drain or bleed off valve with a chrome plated lifting stroke lever arm shall be provided for each gated hydrant inlet or discharge outlet located on the driver side and passenger side pump panels. The valve shall be mounted in an accessible location and shall incorporate a lifting ergonomic grip with color coded labels. The water discharged from the valve lines shall be routed so it is exhausted below the chassis frame rails, with the discharge pointed toward the ground.

All remaining drain or bleed off valves located in areas other than the driver side and passenger side pump panels, such as front suction drains located under the cab, shall be Class 1 3/4" quarter turn ball drain with a rectangular handle and shall be properly labeled.

One (1) Tank to Pump Line Valve - 3", Push-Pull Control, Side Panel Control Y___N___

Fire & Specialty Equipment Company

31-01-5020

TANK TO PUMP LINE

A 3" tank to pump valve shall be installed between the water tank and the pump. The valve shall be a quarter turn ball type, drop out design and constructed of brass. The control handle shall be chrome push/pull locking "T" type and will be installed on the left side pump panel. A check valve shall be installed between the pump and the valve to prevent water from flowing back into the tank.

One (1) Valve Controls - Side Mount, Innovative Controls Y___N___

31-02-0010

INLET AND OUTLET PUSH PULL CONTROLS

Controls for all inlets and outlets shall be push-pull in design, unless otherwise stated at the inlet or discharge option. All inlet and outlet push-pull valve control handles shall be the "T" handle design with a recess in its face for a 7/8" x 2-7/8" identification plate. Handles and panel plates (escutcheons) shall be constructed of cast zinc with a polished chrome plated finish. Handles shall be labeled describing the function of the control handle. The discharge valves that are remote mounted in the pump system piping shall be actuated by the 1/4 turn locking push-pull control assembly. The sliding rod for the outlet which pulls out from the pump panel shall be constructed of 3/4" diameter aluminum with a hard coated anodized surface. The aluminum housing shall incorporate two bronze bushing sleeves. Inlet valve controls do not have to be the locking type nor have the control rod. All controls shall actuate without binding, per the manufacturer's requirements.

One (1) Valves - Direct & Inline, All Akron Y___N___

31-02-0110

AKRON VALVES

All direct and in-line valves shall be Akron model 8600 or 8800 heavy duty swing-out brass valves designed for operating pressures to 250 PSI. Akron 8000 series valves have a 316 stainless steel ball turning in self-adjusting ball seats and shall create a positive seal to hold pressure or vacuum in both directions without the use of high maintenance o-rings.

If electric valves are chosen, the controller shall be model 9327.

One (1) Lubrication Manifold for Akron Handwheel or Electric Valves (up to 6 valves) Y___N___

31-02-0205

LUBRICATION MANIFOLD

A lubrication manifold shall be provided to enable remote lubrication of up to six (6) Akron Brass handwheel or electric valves, in place of the standard lubrication fittings on the valves.

One (1) Warranty - Akron Brass, 8600/8800 Heavy Duty Valves, 10 Year Y___N___

Fire & Specialty Equipment Company

91-75-052B

WARRANTY

Akron Brass warrants the 8600 and 8800 heavy duty valves for a period of ten (10) years after purchase against defects in materials or workmanship. See warranty certificate for complete details.

One (1) Master Compound Gauges - (2) Class 1, Back Lit, 6" dia., 30-0-600 Y___N___
31-02-0380

MASTER GAUGES

A pair of Class 1 back lit liquid filled compound gauges, #91663964-L, shall be provided for the master Pump Intake and master Pump Discharge gauges. The gauges shall be 6" in diameter and have a pressure range of 30-0-600 and shall dampen vibration and pulsation. The cases shall be manufactured with corrosion and impact resistant Zytel nylon. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube of each gauge shall be filled with low temperature oil and sealed from the water system using an isolating diaphragm located in the stem (no exceptions). Light emitting diodes that are independent of the gauges shall back light the gauges. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The master gauges shall be grouped together on the pump operator's control panel for ease of observation during pump operations, as required by NFPA 1901. The backlights shall be activated by turning on the pump panel light switch.

One (1) Gauge LED Color - White Y___N___
31-02-050W

The gauge's LED color shall be white.

Four (4) Gauges - Discharge, 2.5", Class 1, Back Lit, 30-0-400, 1 per Discharge (Ea) Y___N___
31-02-0470

PRESSURE GAUGE(S)

Four (4) individual Class 1 back lit liquid filled line pressure gauge(s), #91523932-L, for the 1.50" and larger discharges shall be furnished. The gauge(s) shall be 2.5" in diameter and have a pressure range of 30-0-400 and shall dampen vibration and pulsation. The case(s) shall be manufactured with corrosion and impact resistant Zytel nylon. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube of each gauge shall be filled with low temperature oil and sealed from the water system using an isolating diaphragm located in the stem (no exceptions). Light emitting diodes that are independent of the gauge(s) shall back light the gauge(s). The backlights shall be activated by turning on the pump panel light switch. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

Four (4) Gauge LED Color - White Y___N___
31-02-050W

The gauge's LED color shall be white.

Five (5) 31-02-0520 Gauge/Flow Meter - FRC FPA-400-X (Ea) Y___N___

PRESSURE GAUGE/FLOW METER(S)

Five (5) waterproof dual pressure and flow meter combination gauges(s), model FPA-400-X, manufactured by Fire Research shall be installed and will display pressure and flow readings simultaneously. Devices that require user intervention such as pushing buttons to change the mode from pressure to flow will not be acceptable. Sensors that transmit the pressure and flow data shall be separate and independent. The sensor used to measure flow shall be of the paddlewheel design. The paddlewheel shall be proved in fire service applications with a minimum of 1000 units in service over 5 years. The magnets shall not be mounted on the paddles. The 0.4" high (minimum) flow meter display shall be "daylight bright" LED, visible even in direct sunlight. The pressure display shall be needle type with 250 degree electric movement.

Discharge receiving flow meter shall be:

Front Crosslay
Rear Crosslay
Left rear preconnect
Right rear preconnect
LDH

Five (5) 31-02-060Z Flowmeter Calibration - at Factory Prior to Shipping Y___N___

FACTORY FLOWMETER CALIBRATION

The flowmeter shall be calibrated at the factory, prior to the apparatus being shipped.

One (1) 31-02-1040 Pump Panel Engine Gauge Display NOT Required With Selected Pressure Governor Y___N___

One (1) 31-02-1215 Air Horn Rocker Switch - On Pump Panel Y___N___

AIR HORN ROCKER SWITCH

A red momentary rocker switch shall be provided on the operator’s pump panel to activate the air horn(s).

One (1) 31-02-2120 Tank Level Gauge - Water, FRC, TankVision Pro #300 Y___N___

WATER TANK LEVEL GAUGE - MASTER

Fire & Specialty Equipment Company

A Fire Research TankVision Pro model WLA300-A00 water tank level gauge shall be installed in a well lit area 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 RGB 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 Polycarbonate/Nylon material, 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, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link 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 be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

The lights shall be interlocked with the parking brake to operate only with the parking brake set.

One (1) 33-10-0200 — Main Pump Inlets - 6" Short, (1) L/S, (1) R/S — Y___N___

PUMP INLETS

A 6" pump manifold inlet shall be provided on each side of the vehicle. Removable die cast zinc strainers shall be provided in each side inlet to provide cathodic protection for the pump and thus reduce corrosion in the pump. Each inlet shall extend past the pump panel and shall allow a minimum of 10" clearance to the outside edge of the running board.

One (1) 34-85-0010 — No Adapter/Valve(s) Required for Main Pump Inlet(s) — Y___N___

Two (2) 34-85-0030 — Cap - Main Pump Inlet, 6" NST Long Handled, Chrome Plated (Ea) — Y___N___

MAIN PUMP INLET CAP(S)

Two (2) 6" NST long handled chrome plated cap(s) shall be provided for the main pump inlet(s).

One (1) 33-10-1300 — Auxiliary Inlet - Gated, 2-1/2", Left Side (Ea) — Y___N___

2-1/2" HYDRANT INLET(S)

One (1) 2-1/2" gated hydrant inlet(s) shall be furnished on the left side of the pump enclosure. The valve shall be recessed behind the panel and shall be provided with a swing valve control extending through the panel. The valve shall be of the drop out type. Inlet shall terminate with a 2-1/2" NST female swivel adapter and screen.

One (1) Plug & Chain - LS Auxiliary Gated Inlet, 2-1/2" NST, Chrome Plated (Ea) Y___N___
34-85-0110

LEFT SIDE AUXILIARY GATED INLET PLUG(S)

One (1) 2-1/2" NST chrome plated plug(s) and retaining chain(s) shall be provided for the left side 2-1/2" auxiliary gated inlet(s).

One (1) Front Inlet - 5" w/o Valve Y___N___
33-13-1300

FRONT 5" PUMP INLET

The apparatus shall be provided with a 5" front pump inlet. It shall be installed with the hose inlet at the right side corner of the cab front bumper.

The inlet shall be constructed of schedule 10 stainless steel piping and shall enter the inlet manifold section of the pump. Galvanized or black iron (steel) pipe is not an acceptable alternative. Connection to the pump shall be via a bolted flange, threaded pipe turned into the manifold will not be acceptable. The front suction shall be a welded fabrication. Threaded pipe and elbows shall not be used in the design of the front inlet. Piping shall be routed under the cab and over the front axle in the right side wheel well area. It shall be mounted to the chassis frame (not cab or body) with heavy duty support brackets. A close nipple shall be installed on the front suction for the drain nearest the operator stand.

The multi-piece assembly shall be connected together with Victaulic couplings. They shall prevent damage to the piping when the chassis frame twists or flexes. Also they shall provide a means of disassembly and removal of any individual piping section if necessary because of accident or for easier access to other damaged areas or places requiring special maintenance needs. Front inlet piping shall be removable without having to remove the cab.

Total assembly shall be fully engineered, and not a "make on job" fabrication where future replacement parts cannot be ordered from the apparatus builder. Bidder may be required to provide evidence of his ability to supply engineering drawings of the front inlet assembly and its individual parts.

One (1) Swivel - Front Inlet, 5", Chrome Plated Brass Y___N___
34-85-0340

FRONT INLET SWIVEL

The front inlet shall extend up vertically through the aluminum treadplate gravel pan at the extreme right outer corner of the bumper extension. A polished chrome plated brass 5" 90 degree right angle swivel with screen shall be threaded onto the inlet pipe opening. The swivel shall rotate a full 180 degrees in a horizontal plane to allow soft hydrant hose (or hard drafting hose) to easily be attached to it and the hydrant with a minimum of effort and without special care regarding hose or vehicle alignment, i.e. the hose shall self-align itself with little assistance when pressurized by automatically turning the swivel to the optimum position. If drafting the hose shall be able to be moved to different locations without repositioning the truck. A lock shall be provided on the swivel to hold it in the travel position.

The swivel, when in the "in transit" position, shall not block apparatus headlights or warning lights (from a straight on perspective). Should there be an objectionable concern with the swivel affecting side headlight efficiency and recognition then an alternate higher location for them shall be available for the fire department's consideration.

One (1) 34-85-035A — No Storz Adapter Required — Y___N___

One (1) 34-85-0395 — No Cap for the Front Inlet — Y___N___

One (1) 33-13-2W10 — 5" Butterfly Valve - Front Inlet f/ Waterous Pump, with Handwheel Control — Y___N___

5" BUTTERFLY VALVE

The front inlet shall include a handwheel controlled 5" butterfly valve. The chrome finished handwheel shall be located on the pump panel. The nameplate shall show handwheel direction for opening or closing. Valve shall be equipped with a thin profile disc. There shall be a right angle gear assembly mounted on top of valve with control rod extended to pump panel.

One (1) 31-01-0745 — Relief Valve - Front Intake Pressure, Task Force Tips, 2-1/2" — Y___N___

INTAKE PRESSURE RELIEF VALVE

A 2-1/2" Task Force Tips intake relief valve shall be permanently installed in the front inlet piping. It shall have minimum pressure adjustment of 75 to 250 PSI. The surplus water shall be plumbed to the underside of the truck away from the operator.

One (1) 31-01-079C — Relief Valve Shall be Preset to 150 PSI — Y___N___

The relief valve shall be preset to 150 psi.

One (1) — Tank Fill Line - 2" — Y___N___

Fire & Specialty Equipment Company

33-20-0200

TANK FILL

There shall be a 2" pump to tank fill line installed with a 2" inline valve. Valve shall be controlled at the pump panel with a chrome locking handle.

One (1) Front Bumper Discharge - 2-1/2" with Swivel & Push-Pull Valve Y___N___
34-15-0120

FRONT BUMPER DISCHARGE

One (1) 2-1/2" pre-connect discharge shall be located in the front bumper extension. The discharge shall be plumbed from the pump with 2-1/2" plumbing. It shall have a 2-1/2" manual full flow quarter turn valve with push/pull control. The discharge shall end in a chrome plated 90 degree swivel elbow.

One (1) Front Bumper Discharge Location - D: Left Outside Position Y___N___
34-15-020D

The discharge shall be located on the bumper in the left outside (D) position.

One (1) Reducer, Cap & Chain - Front Bumper Discharge, 2-1/2", Chrome Plated Y___N___
34-85-0540

FRONT BUMPER DISCHARGE REDUCER, CAP & CHAIN

A 2-1/2" FNST x 1-1/2" MNST chrome plated adapter with 1-1/2" chrome plated cap and retaining chain shall be provided for the front bumper discharge.

One (1) Discharge - LS, 2-1/2", with Push-Pull Valve (Ea) Y___N___
34-20-0250

2-1/2" LEFT SIDE DISCHARGE(S)

One (1) 2 1/2" discharge(s), each with a pump mounted, quarter turn ball valve shall be located on the left side panel. Each valve shall be capable of being locked or unlocked at the valve from the control panel at any position between open or closed and shall operate freely up to maximum pump discharge pressure.

One (1) Adapter - LS 2-1/2" Discharge, 2-1/2" x 2-1/2" NST, Chrome Plated (Ea) Y___N___
34-85-1210

LEFT SIDE DISCHARGE ADAPTER(S)

One (1) 2-1/2" FNPT x 2-1/2" MNST chrome plated adapter(s) shall be provided for the 2-1/2" left side discharge(s).

One (1) Elbow - LS 2-1/2" Discharge, 2-1/2" NST, 30 Degree Chrome Plated (Ea) Y___N___
34-85-1214

LEFT SIDE DISCHARGE ELBOW(S)

One (1) 2-1/2" FNST x 2-1/2" MNST **30 degree** chrome plated elbow(s) shall be provided for the 2-1/2" left side discharge(s).

One (1) 34-85-1933 — Reducer, Cap & Chain - LS 2-1/2" Discharge, 2-1/2", Chrome Plated (Ea) — Y___N___

LEFT SIDE DISCHARGE REDUCER(S), CAP(S) & CHAIN(S)

One (1) 2-1/2" FNST x 1-1/2" MNST chrome plated adapter(s) with 1-1/2" chrome plated cap(s) and retaining chain(s) shall be provided for the 2-1/2" left side discharge(s).

Two (2) 34-21-0400 — Discharge - RS, 4" with Manual Handwheel Control — Y___N___

4" RIGHT SIDE DISCHARGE

There shall be one (1) 4" discharge to the right side pump panel. The outlet shall be piped from the discharge side of the pump through a 4" handwheel controlled valve with 4" piping. The valve shall be pump panel controlled.

Two (2) 34-85-1810 — Adapter - RS 4" Discharge, 4" x 4" NST, Chrome Plated (Ea) — Y___N___

RIGHT SIDE DISCHARGE ADAPTER(S)

Two (2) 4" FNPT x 4" MNST chrome plated adapter(s) shall be provided for the 4" right side discharge(s).

Two (2) 34-85-1895 — No Elbow for Right Side 4" Discharge — Y___N___

Two (2) 34-85-2075 — No Cap for Right Side 4" Discharge — Y___N___

One (1) 34-24-0250 — Rear Discharge - LS, 2-1/2", with Push-Pull Valve (Ea) — Y___N___

2-1/2" LEFT REAR DISCHARGE(S)

One (1) 2-1/2" discharge(s) shall be provided at the rear of the hose bed on the left hand side. It shall be plumbed with 2-1/2" pipe. The outlet(s) shall be operated by an in-line 2-1/2" drop out type valve with control at the pump panel.

One (1) 34-85-2210 — Adapter - LS Rear Discharge, 2-1/2" NST, Chrome Plated (Ea) — Y___N___

LEFT SIDE REAR DISCHARGE ADAPTER(S)

One (1) 2-1/2" FNPT x 2-1/2" MNST chrome plated adapter(s) shall be provided for the 2-1/2" left side rear discharge(s).

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One (1) 34-85-2214 — Elbow - LS Rear Discharge, 2-1/2" NST, 30 Degree Chrome Plated (Ea) Y___N___

LEFT SIDE REAR DISCHARGE ELBOW(S)

One (1) 2-1/2" FNST x 2-1/2" MNST **30 degree** chrome plated elbow(s) shall be provided for the 2-1/2" left side rear discharge(s).

One (1) 34-85-2933 — Reducer, Cap & Chain - LS 2-1/2" Rear Discharge, 2-1/2", Chrome Plated (Ea) Y___N___

LEFT SIDE REAR DISCHARGE REDUCER(S), CAP(S) & CHAIN(S)

One (1) 2-1/2" FNST x 1-1/2" MNST chrome plated adapter(s) with 1-1/2" chrome plated cap(s) and retaining chain(s) shall be provided for the 2-1/2" left side rear discharge(s).

One (1) 34-25-0250 — Rear Discharge - RS, 2-1/2", with Push-Pull Valve (Ea) Y___N___

2-1/2" RIGHT REAR DISCHARGE(S)

One (1) 2-1/2" discharge(s) shall be provided at the rear of the hose bed on the right hand side. Each shall be plumbed 2-1/2" pipe. The outlet(s) shall be operated by an in-line 2-1/2" drop out type valve with control at the pump panel.

One (1) 34-85-2610 — Adapter - RS Rear Discharge, 2-1/2" NST, Chrome Plated (Ea) Y___N___

RIGHT SIDE REAR DISCHARGE ADAPTER(S)

One (1) 2-1/2" FNPT x 2-1/2" MNST chrome plated adapter(s) shall be provided for the 2-1/2" right side rear discharge(s).

One (1) 34-85-2614 — Elbow - RS Rear Discharge, 2-1/2" NST, 30 Degree, Chrome Plated (Ea) Y___N___

RIGHT SIDE REAR DISCHARGE ELBOW(S)

One (1) 2-1/2" FNST x 2-1/2" MNST **30 degree** chrome plated elbow(s) shall be provided for the 2-1/2" right side rear discharge(s).

One (1) 34-85-3033 — Reducer, Cap & Chain - RS Rear Discharge, 2-1/2", Chrome Plated (Ea) Y___N___

RIGHT SIDE REAR DISCHARGE REDUCER(S), CAP(S) & CHAIN(S)

One (1) 2-1/2" FNST x 1-1/2" MNST chrome plated adapter(s) with 1-1/2" chrome plated cap(s) and retaining chain(s) shall be provided for the 2-1/2" right side rear discharge(s).

One (1) 34-90-03AH — Discharge - Deck Gun, 3", w/ Handwheel Control Y___N___

3" DELUGE RISER W/ HANDWHEEL CONTROL

A 3" deluge gun riser shall be installed above the pump terminating in the open bin with National Pipe Thread (NPT). Location to be determined on the P. E. Drawing and approved by the customer. Piping shall be installed securely so no movement develops when the line is charged. The riser shall be gated and controlled at the pump operator panel by a handwheel controlled valve. The outlet shall be piped from the discharge manifold of the pump through 3" piping. An open/closed dial indicator shall be provided on the pump panel.

Piping shall terminate above the pump housing floor approximately 12-1/2".

One (1) Extend-A-Gun - TFT #XG18VL-PL. 18" x 3" Manual (for Any Monitor Top) Y___N___
35-00-0T94

TELESCOPING MONITOR PIPE

One (1) Task Force Tips model XG18VL-PL manually telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" by lifting a quick release latch located at the base of the extension tube. This latching device shall be capable of locking the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees.

A sensor shall be located on the waterway that signals a 12-volt indicator light installed in the cab to illuminate and indicate that the monitor is raised. The indicator shall display on the information display located in the cab dash, and activate the hazard warning light in the cab overhead and audible alarm.

The aluminum riser shall have a 3" waterway; hard coat anodized finish and be furnished with a 3" Victaulic inlet and a 3" male NPT outlet.

One (1) Bracket Kit - TFT, #XGB-33, Extend-A-Gun, 3" Saddle/Saddle Y___N___
35-00-0T9A

EXTEND-A-GUN BRACKET SET

One (1) Task Force Tips model # XGB-33 bracket set shall be provided. The set shall include two saddle brackets and is designed to securely mount the Extend-A-Gun™ telescoping waterway.

One (1) Deck Gun Provided by Manufacturer Y___N___
35-00-0T9K

The deck gun shall be provided by the manufacturer.

One (1) == Pumper Body OAL - 146" Medium Ext. - 0.000 == Y___N___

One (1) 37-11-0200 Water Tank - 750 Gallon, L-Type Y___N___

L-TYPE WATER TANK

An L-shaped polypropylene water tank shall be supplied. It shall have a capacity of 750 U.S. gallons and shall be constructed per the manufacturer's specifications. The floor of the raised portion over the water tank shall be covered with NFPA stepping surface compliant aluminum tread plate.

One (1) 37-31-4000 Tank Manufacturer - United Plastic Fabricating (UPF) Y___N___

The tank shall be manufactured by United Plastic Fabricating (UPF).

One (1) 37-31-4100 Water Tank Fill Tower - UPF, Blue, 4" ID Vent Overflow Y___N___

WATER TANK FILL TOWER

The United Plastic Fabricating (UPF) tank shall have a combination vent and manual fill tower. The polypropylene fill tower shall have a minimum dimension of 8" x 8" outer perimeter. (Standard size shall be 12.00" x 12.00"). The fill tower shall be not less than 12.00" high and shall be flush with the top of the body risers as standard. The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall be located in the left front corner of the tank unless otherwise specified by the tank manufacturer to the purchaser. The tower shall have a removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I. D. of 4" that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

One (1) 91-75-053U Warranty - United Plastic Fabricating Tank, Limited Lifetime Y___N___

WARRANTY

The tank manufacturer, United Plastic Fabricating, shall provide a limited lifetime warranty. See warranty certificate for complete details.

One (1) 37-31-4225 Tank Cradle - Stainless Steel Y___N___

WATER TANK CRADLE

The tank shall rest on stainless steel cross members in conjunction with such additional cross-members, spaced at a distance that would not allow for more than 530 square inches

of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40 inches, cross-member spacing shall be decreased to allow for not more than 400 square inches of unsupported area. The tank shall be isolated from the cross members through the use of hard rubber strips with a minimum thickness and width dimension of .250" x 2.00" and a minimum Rockwell Hardness of 60 durometer. Additionally, the tank shall be supported around the entire bottom outside perimeter and captured both front and rear as well as side to side to prevent the tank from shifting during vehicle operation. Although the tank is designed on a free floating suspension principle, the tank shall have adequate hold down restraints to minimize movement during vehicle operation. If proper retention is not available or incorporated into the apparatus hose floor, an optional mounting restraint system shall be located on top of tank, half way between the front and the rear on each side of the tank. These stops shall be constructed of stainless steel having minimum angular dimensions of 3.00" x 3.00" x .250" and shall be approximately 6.00" to 12.00" long. These brackets shall incorporate a hard rubber isolating pad with a minimum thickness of .250" affixed on the underside of the angle. The angle shall then be bolted to the body sidewalls of the vehicle while extending down to rest on the top outside edge of the upper sidewall of the tank. Internal mounting block design and hose bed floors shall be so designed that the floor slat supports extend full width from side wall to side wall and are not permitted to drop off the edge of the tank or in any way come in contact with the individual covers where a puncture could occur. Hose floor loading shall support up to 200 lbs. per sq. foot and shall be evenly distributed whenever possible. Other equipment such as generators, portable pumps, etc. shall not be mounted directly to the tank top.

One (1) ATP Cover on Water Tank - Yellow Perimeter Marking Y___N___
37-31-501A

YELLOW PERIMETER MARKING

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of the aluminum tread plate floor over the water tank shall be marked with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

One (1) Vent Overflow Pipe-Hose Extension Y___N___
37-31-5005

VENT OVERFLOW PIPE-HOSE EXTENSION

Rubber hose shall be connected to the vent overflow pipe on the lower portion of the water tank. This hose shall direct any overflowing water behind the rear axle of the apparatus.

When the water tank has one or more of the following: dump chute(s), large tank fill or multiple tank fill(s), the vent overflow pipe shall not be provided, as this causes the vent overflow pipe size to increase.

One (1) Pumper Body Over All Length - 146" Medium Extended (C=61.5") Y___N___
40-00-0146

146" OVERALL BODY LENGTH

The overall length of the body shall be 146". The distance from the front exterior edge of the body to the midline of the rear axle shall be 61.5". Body overall width shall be 98", fender to fender.

One (1) 40-00-1130 Body Material & Construction - Stainless Steel, Medium Extended Y___N___

STAINLESS STEEL BODY CONSTRUCTION

The body and compartments shall be constructed of heavy duty 3CR12 stainless steel. The body shall be welded on external or hidden surfaces wherever possible to insure a clean compartment interior look. The compartments shall be a "sweep out" design with the floor higher than the door sill. The compartment floors shall be a minimum of 2.5 mm 3CR12 stainless steel. All compartment seams shall be caulked with gray adhesive/sealant. Each compartment shall be rated for 500 lbs. of storage. False bulkhead panels shall be provided on the inside of the forward and rearward wall of the side compartment panel to cover and protect all electrical wiring and components. This also provides a clean interior for equipment mounting. These panels shall be removable. Removable service panels shall be placed within each of the false bulkhead panels. Door frames on compartments with hinged doors shall be fabricated by flanging the door opening edges inward 1.88" and bending out again .75" to form an angle. The hose body side panels and partitions shall be raised in 5" increments to provide adequate storage for the required and specified hose load.

A bright aluminum tread plate cover shall be installed over the side compartments. The cover shall not form the compartment top but shall be an overlay. The forward and rearward edges of the cover shall be folded down 1.5" to cap the forward and rearward ends of the side compartment panel. The outside edge of the cover shall be folded down 1.5" to cap the outside of the side compartment panel and shall have a 45 degree outward bend to provide drip protection over any compartment doors which are immediately below the cover. This aluminum tread plate cover shall not be provided when rooftop compartments are present.

Extruded aluminum drip molding with a bright anodized finish shall provide drip protection for any compartment doors that are not directly below an aluminum tread plate cover. The forward face of the side compartments and the face of the front cross panel above the operator stand shall be covered with a bright aluminum tread plate overlay. All body components covered with aluminum tread plate overlays shall be coated with an anti-corrosion compound prior to installation. All tread plate shall be secured with threaded fasteners.

Fender compartments shall be integral with the body side compartmentation. There shall be no sharp objects protruding into the wheel well area that could cause injury while cleaning or doing other maintenance in this area.

One (1) Body Roof - (2) Signs, FAMA26 No-Step Y___N___

40-05-9950

FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be located on the front and rear of the body roof. The sign reads: "Fall Hazard-Railings NOT provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill"

One (1) Body Mounting Substructure for Stainless Steel Pumper Body Y___N___
40-10-0010

BODY MOUNTING SUBSTRUCTURE

The front portion of the right and left hand side compartments shall mount to a front cross panel. The panel shall be constructed of stainless steel tubing and heavy duty stainless steel sheet metal. The front cross panel assembly shall rest on two (2) heavy duty rubber isolators. These isolators shall be bolted to brackets mounted to the chassis frame, as close to the center line of the chassis frame as possible. These center mounted isolators shall provide a pivot point which shall allow chassis movement without introducing stresses into the body. The rear portion of each side compartment shall bolt directly to the rear step support assembly, which is bolted directly to the chassis frame. The rear steel step/body support assembly shall be constructed of formed .25" and .375" plate, 2" X 3" tubes, 2" X 2" angles, and 3" structural channels in a welded assembly. The rear wall shall be reinforced with formed heavy duty panels.

The compartment sizes shall be as follows:

One (1) LS Compts - Medium SS 70"H FH, 31.5/64/50.5, 14" Extended, Roll-up Y___N___
45-10-4210

LEFT SIDE COMPARTMENTS

The full height left hand side panel at 146.00" long by 70.00" high shall be made of stainless steel. This panel consists of one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels, and one (1) upper compartment above the rear wheels. The compartment behind the rear wheels has a 25.75" wide x 29.75" high transverse area through the rear tailboard compartment. It also has extended compartmentation in place of standard beavertail. This extended area is half depth in the upper area and full depth in the lower area. All compartments shall have roll-up style doors.

The full height compartment ahead of the rear wheels shall have a doorframe to doorframe dimension of 28.50" wide x 63.75" high. The clear door opening shall be 27.00" wide x 57.50" high. The usable compartment space for the full depth area shall be 28.50" wide x 29.75" high x 26.50" deep and the area under the roll shall be 28.50" wide x 27.75" high x 12.50" deep. This compartment shall have an aluminum shutter type roll-up door.

The full height compartment behind the rear wheels shall have a doorframe to doorframe dimension of 47.50" wide x 63.75" high. The clear door opening shall be 46.00" wide x 57.50" high. The usable compartment space for the full depth area shall be 31.50" wide x 29.75" high x 26.50" deep and the area under the roll shall be 47.50" wide x 27.75" high x 12.50" deep. This compartment shall have an aluminum shutter type roll-up door.

The upper compartment above the rear wheels shall have a doorframe to doorframe dimension of 58.00" wide x 30.50" high. The clear door opening shall be 56.50" wide x 25.25" high. The usable compartment space shall be 63.38" wide x 26.25" high x 12.50" deep. This compartment shall have an aluminum shutter type roll-up door.

One (1) RS Compts - Medium SS 70"H FH, 31.5/64/50.5, 28" Extended, w/Rack, Roll-up Y___N___
45-20-4260

RIGHT SIDE COMPARTMENTS

The full height right hand side panel at 146.00" long by 70.00" high shall be made of stainless steel. This panel consists of one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels, and one (1) upper compartment above the rear wheels. There is a ladder rack pivot area behind the upper compartment. The compartment behind the rear wheels has a 25.75" wide x 29.75" high transverse area through the rear tailboard compartment. It also has extended compartmentation in place of standard beavertail. This extended area is half depth in the upper area and full depth in the lower area. All compartments shall have roll-up style doors.

The full height compartment ahead of the rear wheels shall have a doorframe to doorframe dimension of 28.50" wide x 63.75" high. The clear door opening shall be 27.00" wide x 57.50" high. The usable compartment space for the full depth area shall be 28.50" wide x 29.75" high x 26.50" deep and the area under the roll shall be 28.50" wide x 27.75" high x 12.50" deep. This compartment shall have an aluminum shutter type roll-up door.

The full height compartment behind the rear wheels shall have a doorframe to doorframe dimension of 47.50" wide x 63.75" high. The clear door opening shall be 46.00" wide x 57.50" high. The usable compartment space for the full depth area shall be 47.50" wide x 29.75" high x 26.50" deep and the area under the roll shall be 47.50" wide x 27.75" high x 12.50" deep. This compartment shall have an aluminum shutter type roll-up door.

The upper compartment above the rear wheels shall have a doorframe to doorframe dimension of 44.50" wide x 30.50" high. The clear door opening shall be 43.00" wide x 25.25" high. The usable compartment space shall be 50.13" wide x 26.25" high x 12.50" deep. This compartment shall have an aluminum shutter type roll-up door.

One (1) Hydraulic Ladder Rack Y___N___
90-10-0100

HYDRAULIC LADDER RACK

The ground ladders shall be mounted above the side compartments on a swing down ladder rack. This rack is to be constructed of 6061 aluminum plate and 6063 aluminum tubing. The rack is to be mounted to the body at three pivot locations; front, rear and center. All pivot locations shall be bronzed bushed and all pins shall be 1" diameter minimum. The center arm shall be constructed of two 3/4" thick aluminum plates spaced no less than 4.75" apart. The side pivot arms shall be constructed of solid 3/4" x 2-1/2" aluminum bar, gusseted at the top where joining the tube structure. The tube structure under the ladder shall be no less than 2" x 2" x 1/8" wall and shall be diagonally braced. There shall be a minimum of 12" of clearance beneath the tube structure to the top of the body ATP catwalk. Selection of options like hose bed covers may have an affect on this dimension.

One (1) double acting hydraulic cylinder shall be furnished at the center pivot location to move the rack up and down. The cylinder shall have a 2 1/2" diameter bore size and a 1-1/4" diameter piston rod size. The piston rod shall be threaded and provided with an adjustable clevis. Mounted directly to the cylinder shall be a flow control valve to prevent the rack from dropping suddenly in case of hydraulic line burst or leakage. A tie rod type cylinder with O-ring seals will not be acceptable.

A door shall be provided to cover the hydraulic cylinder and will close automatically when the rack is in the up position.

The hydraulic cylinder shall be operated by an independent hydraulic pump coupled to a 12 VDC motor. The pump shall be capable of 150 cubic inches of oil a minute at 1000 psi. The pump reservoir shall be made of high density polyethylene and hold 46 cubic inches of oil.

A guarded toggle switch shall control the hydraulic pump through a 12 volt relay. This switch shall be located on the pump panel to allow the operator full view of the rack when lowering. One over center stainless steel cam lock shall secure the ladder rack at the front when in the up position. This cam lock shall prevent the ladder rack from moving both side to side and from moving fore and aft during road travel. The cam lock shall be installed at the forward position within easy reach of the operator. An indicator light shall be installed in the cab to notify the driver when the cam lock is unlocked from the stored position. There shall be interlocks to prevent the rack from being lowered when the cam is closed.

The ladder rack shall be capable of being lowered within 12 seconds. When lowered, the bottom of the rack shall not be more than 54 inches above the ground.

A warning light, activated when parking brake is disengaged, shall be provided in the cab to indicate when rack is in motion or down. Reflective striping shall be provided on the outward side of the rack.

One (1) Hydraulic Ladder Rack Front & Rear Flashing Lights - (2) Whelen OSR00FCR Y___N___

90-10-0170

Whelen model OSR00FCR red LED lights with clear lens and chrome flange shall be provided on the front and rear of the rack. They shall be activated when the rack is in use.

One (1) Hydraulic Ladder Rack Finish - Etchfinish Y___N___
91-02-4010

HYDRAULIC LADDER RACK FINISH

The hydraulic ladder rack shall have an Etchfinish.

One (1) Vents - Body Compartments (Matrix) Y___N___
45-38-0100

VENTS

Compartment vents shall be provided to meet the requirements of NFPA 1901, current edition.

One (1) Inner Liners - Rear Single Axle, Aluminum Y___N___
45-39-0020

REAR ALUMINUM INNER LINERS

Full semi-circular inner liners shall be provided in each wheel housing. They shall be constructed of aluminum and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The bottom edge of liner shall be reinforced along its full length, however, it shall not have a formed reinforcement flange to avoid trapping dirt and debris.

One (1) Fenderette - Rear Single Axle, Rubber Y___N___
45-39-0040

REAR FENDERETTE

Black rubber fenderettes shall be installed on the rear wheel openings. The fenders shall be wide enough to completely cover the outside rear tire and reduce wheel splash up the sides of the body. They shall be installed with 1/4" hex head bolts, self-tapping sheet metal screws are not acceptable. There shall be a stainless steel backing strip between the rubber and the mounting flange to add support. The fenderettes shall incorporate a vertical flange to cover the area where the body side and wheel opening mounting surface meet. The fenderettes shall be a minimum of 1/4" thick, have a mold-formed outer radius and a rounded bead at the wheel opening edge.

One (1) Fender Panel - Rear, S/S, Single Axle, Painted without Overlay Y___N___
45-39-0060

REAR FENDER PANELS

Painted 3CR12 stainless steel fender panels shall be provided on the outer face of each fender area. The panels shall be painted to match the job color.

One (1) 45-40-2725 — Rear Compt. - 27.25" H, SS, Roll-up Door — Y___N___

REAR COMPARTMENT

One (1) full height, full width stainless steel compartment shall be provided at the rear of the apparatus above the tailboard, In the rear wall, there shall be a removable access cover adequately sized to service the fuel tank pickup tube and sending unit without having to remove the tank.

The full height compartment shall have a doorframe to doorframe dimension of 38.00" wide x 27.25" high. The clear door opening shall be 34.00" wide x 24.50" high. This compartment shall have vertically hinged double doors.

Rear compartment is notched around the frame and fuel cell due to the air-ride rear suspension

The rear compartment will be
***12.00in deep below the frame.**
***28.00in deep above the frame.**
Therefore, the transverse area through each rear side will be
***12.00in wide x 14.00in high below the frame.**
***25.75in wide x 14.00in high above the frame. (EDR #F0822)**

Two (2) 57-05-2000 — Rear Compartment Partition - to Divide Transverse Compartment (Ea) — Y___N___

PARTITION(S) - TRANSVERSE REAR COMPARTMENT

Two (2) bolt-in partition(s) to match body material shall be installed in the rear transverse compartment. The partition(s) shall be fastened with #10 self-tapping screws. Each partition shall be used to close off one side of the transverse area into the rear tailboard compartment.

Two (2) 57-05-200R — Rear Compartment Partition Locations - Both Sides — Y___N___

The rear compartment partition shall be located on both sides.

One (1) 91-01-0430 — Finish - Body Rear Compartment Interior, Gray Zolatone Paint (Ea Compt) — Y___N___

FINISH – BODY REAR COMPARTMENT INTERIOR(S)

One (1) body rear compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

One (1) 57-00-0000 — Compartment Doors - Side, Roll-up Type - R.O.M./Robinson Shutters — Y___N___

Fire & Specialty Equipment Company

ROLL-UP COMPARTMENT DOORS

The side compartment doors shall be R.O.M./Robinson aluminum shutter roll-up type doors (made in the U.S.A.) with an anodized finish. A magnetic door ajar and compartment light system designed within the door to conceal moving parts and prevent parts exposure in the compartment shall be provided. Slats shall be double-wall box frame extrusion and must be anodized to eliminate oxidation and rusting. Exterior surface shall be flat and interior surface to be concave to help loose equipment from jamming the door. The latch system shall be a full width, one piece, lift bar, enabling operation with one hand. The manufacturer's standard door frame design may be altered or modified to accommodate the roll-up doors.

Six (6) Keyed Locks - ROM Roll-up Compartment Doors (#1250 Keys) (Ea) Y___N___
57-00-2010

LOCKING COMPARTMENT DOOR(S)

Six (6) roll-up door(s) shall be equipped with a model 1250 cam style lock. The locking mechanism shall consist of 2 locking rods that shall slide into pre-drilled holes in each of the door tracks. All locks shall be keyed alike (to use the same #1250 key).

The following compartments shall be equipped with keyed locks:

LS1,LS2,LS3
RS1,RS2,RS3

Six (6) Paint Roll-Up Doors - Job Color, Trim Remains Satin (Ea) Y___N___
57-00-3000

PAINT ROLL-UP DOOR(S) JOB COLOR

The slats on six (6) roll-up door(s) shall be painted to match the apparatus body. The door frames shall not be painted; they shall remain a satin finish.

Specific terms and conditions of the warranty are as provided by the door manufacturer.

One (1) Warranty - R.O.M. Products Y___N___
91-75-2990

WARRANTY

The R.O.M. Roll-Up Shutter shall be warrantied for manufacturing defects for a period of 7 years from the date of purchase. See warranty certificate for complete details.

One (1) Compartment Door - Rear, Roll-up Type - R.O.M./Robinson Shutter Y___N___
57-00-0010

ROLL-UP COMPARTMENT DOORS

The compartment door on the rear of the apparatus shall be an R.O.M./Robinson

aluminum shutter roll-up type door, made in the U.S.A. with an anodized finish. A magnetic door ajar and compartment light system designed within the door to conceal moving parts and prevent parts exposure in the compartment shall be provided. Slats shall be double-wall box frame extrusion and must be anodized to eliminate oxidation and rusting. Exterior surface shall be flat and interior surface to be concave to help loose equipment from jamming the door. The latch system shall be a full width, one piece, lift bar, enabling operation with one hand. The manufacturer's standard door frame design may be altered or modified to accommodate the roll-up doors.

One (1) 57-00-2010 Keyed Locks - ROM Roll-up Compartment Doors (#1250 Keys) (Ea) Y___N___

LOCKING COMPARTMENT DOOR(S)

One (1) roll-up door(s) shall be equipped with a model 1250 cam style lock. The locking mechanism shall consist of 2 locking rods that shall slide into pre-drilled holes in each of the door tracks. All locks shall be keyed alike (to use the same #1250 key).

The following compartments shall be equipped with keyed locks:

Rear

One (1) 57-00-3000 Paint Roll-Up Doors - Job Color, Trim Remains Satin (Ea) Y___N___

PAINT ROLL-UP DOOR(S) JOB COLOR

The slats on one (1) roll-up door(s) shall be painted to match the apparatus body. The door frames shall not be painted; they shall remain a satin finish.

Specific terms and conditions of the warranty are as provided by the door manufacturer.

One (1) 91-75-2990 Warranty - R.O.M. Products Y___N___

WARRANTY

The R.O.M. Roll-Up Shutter shall be warrantied for manufacturing defects for a period of 7 years from the date of purchase. See warranty certificate for complete details.

One (1) 57-00-6020 Main Body Compartment Door Hinges - None Present: All Roll-Up Doors Y___N___

BODY DOORS

All exterior compartment doors on the main body shall be roll-up.

Six (6) 91-01-0330 Finish - Body Side Compartment Interior, Gray Zolatone Paint (Ea Compt) Y___N___

FINISH – BODY SIDE COMPARTMENT INTERIOR(S)

Six (6) body side compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

One (1) 91-02-2100 Hose Bed Finish - DA Finish Y___N___

DA FINISHED HOSE BED

The interior of the hose bed shall be "DA" finished only, no paint shall be provided. If the body is made of stainless steel, the exposed surfaces on the interior of the hose bed shall be manufactured with 304 stainless steel.

One (1) 45-48-8995 Pumper Rear - Recessed Tailboard, for Extended Bodies Only Y___N___

One (1) 45-48-9210 Rear Surface - Smooth Aluminum Below Hose Bed Y___N___

REAR SURFACE OF BODY

The rear facing body surface around the rear compartment shall be covered with smooth aluminum in preparation for the installation of reflective chevron striping.

Adequately reinforced tread plate shall cover any front to back walls facing the step area up to the height of the hose bed floor. Then the remaining upper inside surface shall be covered with brushed stainless steel. All tread plate shall be secured with threaded fasteners.

The rear facing bulkhead of the compartments shall be painted job color.

One (1) 57-20-5610 Tailboard - Pumper, 16"D, with Grip Strut®, for Extended Y___N___

TAILBOARD WITH GRIP STRUT®

The tailboard shall be 16” deep and located between the rear body compartments. The width of the tailboard between the rear body compartments shall be 42" when both compartments are 28" deep, 70" when both compartments are 14" deep, and 56" when one compartment is 14" deep and the other compartment is 28" deep. The tailboard surface shall be 3/16” thick aluminum tread plate with 2-1/2” deep flanges on the front, rear, and side edges. There shall be a Grip Strut® insert welded into the tailboard. The insert shall be 31-3/4” wide x 4-1/2” deep. The tailboard shall be installed over a heavy-duty steel framework to prevent it from bending and flexing. The tailboard support shall be constructed of formed 1/4” - 3/8” plate, 2” X 3” tubes, 2” X 2” angles, and 3” structural channels in a welded assembly. It shall be bolted directly to the chassis frame rails, not the body.

All mounting bolts used to fasten the tread plate to the tailboard support shall be 5/16" truss-head Phillips. Self-tapping sheet metal screws shall not be used to install the aluminum tread plate. There shall be a 1/2" gap between the tailboard and the body to prevent moisture from being trapped.

One (1) == Body Options - Matrix Pumper - 0.000 == Y___N___

One (1) Hose Load - Main Hose Bed Y___N___
45-60-0100

HOSE LOAD

The hose load in the main hose bed shall be from this manufacturer:
Double Jacket Hose Triple Duty Hose

Size and quantity of hose shall be: 1200" 5"LDH 100' lengths flat load 5 wide 600' 1.75 DJ Two (2) separate slots each flat loaded. 500' DJ_2.5 DJ single slot

Location of each size of hose in the bed shall be (from left to right, facing the rear of the truck):

300' of 1.75
500' of 2.5
1200' of 5"
300' of 1.75

One (1) Hose Bed - with Aluminum Slats, Pumper Y___N___
45-60-0200

HOSE BED

The hose bed shall be a minimum of 70" wide and shall be thoroughly reinforced at the corners. Removable aluminum grating shall be installed in the bottom of the hose bed to provide ventilation. The grating slats shall be 4-5/8" wide by 1/2" thick and shall have a corrugated or ribbed surface to help drain and dry the hose. The interior of the hose bed body shall be smooth and free from all sharp projections that might damage the hose.

Pumper Body Style:
The shape of the hose bed for a pumper body shall be rectangular, 70" wide as standard.

Rescue Pumper Body Style:
The shape of the hose bed for a rescue pumper body shall be T-shaped when the tank is shorter than the height of the body sides. The upper portion shall be 70" wide between the risers as standard. The bottom portion of the hose bed between the compartments shall be 42" wide.

Choosing options such as hatch compartments, hydraulic ladder rack, and/or split body styles (one side pumper and one side rescue) may change the width and shape of the hose bed.

One (1) 45-65-1005 Hose Bed Cross Panel Divider - S/S, DA Finish Y___N___

HOSE BED CROSS PANEL DIVIDER

A hose bed cross panel divider shall be provided to separate the tank fill tower(s) from the hose load. The divider shall be constructed of 304 stainless steel and shall have a DA finish. The divider shall be installed laterally 4” behind the tank fill tower(s); if the water tank is an "L" tank, the divider shall be installed at the rear of the raised portion to support the hose bed dividers and slat flooring. The divider shall be bolted in place, allowing for its removal to facilitate tank removal.

Three (3) 45-65-1500 Hose Bed Partition - Aluminum, Etchfinish/DA with Handhold (Ea) Y___N___

HOSE BED DIVIDER(S)

Three (3) smooth aluminum hose bed divider(s) shall be provided to separate the individual hose loads. The divider shall be constructed of .1875” aluminum sheet welded to a T-shaped extruded foot that runs the full length of the partition. The divider(s) shall be fully adjustable by providing slide tracks at the front and rear of the hose bed. The divider shall be held in place by two (2) 5/16" tapered bolts at each end of the partition. The mounting bolts shall turn into threaded slide blocks located in the track. Holes in the T-shaped foot shall be countersunk so the bolt head is flush with the surrounding surface and will not damage the hose.

Partitions smaller than 36" in all dimensions shall have an Etchfinish. Larger partitions shall have a DA finish.

There shall be a handhold slot 3" from the back edge of the rear of the partition. The handhold shall be the full height of the partition beginning 3.5" from the top and bottom edges.

Three (3) 45-65-1710 Hose Bed Divider's Height - Match Height of Body Risers Y___N___

The hose bed dividers height shall approximately match the height of the body risers.

If an upper cross rail is provided, the dividers shall be shortened approximately 3.50" to clear the cross rail.

Three (3) 45-68-0100 Hose Bed Part. Reinforcement - Required with Partitions 23"-36" tall (Ea) Y___N___

HOSE BED DIVIDER REINFORCEMENT(S)

A 1.25” round aluminum extrusion slotted on the bottom to fit over the top and rear edge of the partition shall be provided on three (3) hose bed divider(s). The extrusion shall be beveled at the corner and welded in place to reinforce the partition. This option is required for partitions with excessive length or height.

One (1) 45-68-1000 Hose Bed Cover - Vinyl Y___N___

HOSE BED COVER

A hose bed cover made from 20 oz. per square yard polyester shall be provided and installed over the hose bed. The cover shall be coated with a urethane top coat (vinyl). The rear of the hose bed cover shall be secured, and cover the hose bed opening. Stainless steel brackets shall be used to hold the lower footman loops, in place of drilling into the body.

This cover shall secure the hose from unintentional deployment while the vehicle is underway in normal operations.

One (1) 45-68-110R Vinyl Hose Bed Cover Shall be Red in Color Y___N___

The vinyl hose bed cover shall be red in color. Color number of the vinyl is 705-1064.

One (1) 45-68-111V Hose Bed Cover Shall be Fastened down with Velcro Straps and Gator Straps Y___N___

The hose bed cover shall be fastened down with Velcro straps on the top and Gator straps with stainless steel hook clips on the rear.

One (1) 45-68-1775 Backboard Storage Y___N___

BACKBOARD STORAGE

Backboard storage slot shall be provided in the right side of hose bed. It shall be 2"W X 18"T X 74"D . It shall consist of a slot mounted vertically along the right side hosebed wall. The Vinyl cover over the hosebed will secure the backbaord from unintentional deployment.

Seven (7) 57-05-0200 Turtle Tile - per Compartment / Shelf / Tray (Ea) Y___N___

TURTLE TILE

Seven (7) black Turtle Tile mat(s) shall be provided and installed on body compartment floors and/or in shelves/trays as specified.

Seven (7) 57-05-5195 Compartment Option Location - As Specified Y___N___

The location of the compartment option(s) shall be as follows:

LS1, LS2, LS3

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RS1, RS2, RS3
Rear

(Floors only not on shelves or trays)

Six (6) 57-05-3030 — Adjustable Shelf - Stainless Steel (Ea) — Y___N___

ADJUSTABLE SHELF OR SHELVES

Six (6) adjustable shelf or shelves (with open corners) made from 12 gauge 304 stainless steel shall be provided in the body compartment(s). The shelf lip shall be 1.75" high. Each shelf shall be supported by four (4) stainless steel angles bolted to Aluma-Strut tracks for adjustability.

When in a split depth compartment, the Aluma-Strut tracks shall only be provided in the upper or lower area where the shelve(s) are located.

Six (6) 57-05-5190 — Compartment Option Location - Determined at Time of Order — Y___N___

The location of the compartment option(s) shall be determined at the time of order.

Six (6) 91-01-5300 — Finish - Adjustable Shelf, DA outside Edge (Ea) — Y___N___

FINISH - ADJUSTABLE SHELF (OR SHELVES)

Six (6) adjustable shelf (or shelves) shall have a DA finish on the outside edge of the shelf.

One (1) 57-05-4015 — Adjustable Roll Out Tray - Base Depth, in Compartment (Ea) — Y___N___

ROLL OUT TRAY(S)

One (1) base depth rollout tray assembly(s) shall be provided in the body compartment(s). The tray shall be vertically adjustable on Aluma-Strut attached to the side walls of the compartment.

One (1) 57-05-4220 — Tray Construction - Stainless Steel, Base Depth (Ea) — Y___N___

One (1) base depth tray(s) shall be constructed of 12 gauge 304 stainless steel and shall have edges on all four sides for added strength. The corners shall be open. The tray lip shall be 1.75" high.

One (1) 91-01-6300 — Finish - Roll Out Tray, DA Outside Edge (Ea) — Y___N___

FINISH - ROLL OUT TRAY(S)

One (1) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

One (1) 57-05-4910 SlideMaster #AM2, 70% Aluminum, 500#, Base Depth (Ea) Y___N___

One (1) SlideMaster model AM2 aluminum base depth slide mechanisms shall be installed allowing the tray to extend 70% of the slide length. The tray/compartment shall be able to support a 500 pound load.

One (1) 57-05-4990 SlideMaster Rotating Lock Y___N___

The SlideMaster slide mechanism shall be secured with a SlideMaster Rotating Lock.

One (1) 57-05-5190 Compartment Option Location - Determined at Time of Order Y___N___

The location of the compartment option(s) shall be determined at the time of order.

One (1) 57-12-0100 Fender Storage - Single Axle Y___N___

FENDER STORAGE

Storage compartments in the fender area of the apparatus shall be comprised of the following:

One (1) 57-12-0110 Fender Storage - Single Axle, Driver's Side Front Y___N___

On the driver's side of the apparatus, forward of the rear axle there shall be:

One (1) 57-12-0720 Air Bottle Compartment - Dual Y___N___

One (1) enclosure to accommodate two (2) air bottles, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. The double oval compartments shall have a single wide opening and a raised nylon center divider to prevent the bottles from rolling together. A detainment strap shall be installed.

One (1) 57-12-0140 Fender Storage - Single Axle, Driver's Side Rear Y___N___

On the driver's side of the apparatus, aft of the rear axle there shall be:

One (1) 57-12-0720 Air Bottle Compartment - Dual Y___N___

One (1) enclosure to accommodate two (2) air bottles, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. The double oval compartments shall have a single wide opening and a raised nylon center divider to prevent the bottles from rolling together. A detainment strap shall be installed.

One (1) 57-12-0150 Fender Storage - Single Axle, Officer's Side Front Y___N___

On the officer's side of the apparatus, forward of the rear axle there shall be:

One (1) 57-12-0730 — Extinguisher Compartment - Single — Y___N___

One (1) enclosure to accommodate one (1) fire extinguisher (not included), fabricated of high impact polyethylene material, with approximately 26.0" usable depth, and an 8.0" inside diameter. A detainment strap shall be installed.

One (1) 57-12-0180 — Fender Storage - Single Axle, Officer's Side Rear — Y___N___

On the officer's side of the apparatus, aft of the rear axle there shall be:

One (1) 57-12-0730 — Extinguisher Compartment - Single — Y___N___

One (1) enclosure to accommodate one (1) fire extinguisher (not included), fabricated of high impact polyethylene material, with approximately 26.0" usable depth, and an 8.0" inside diameter. A detainment strap shall be installed.

Four (4) 57-12-0820 — Fender Storage Doors - Painted Job Color w Push Button Lever Latch (Ea) — Y___N___

Four (4) fender storage doors shall be constructed of 12 gauge stainless steel painted job color, secured by a full length stainless steel hinge and a push button lever latch.

One (1) 57-20-7900 — Steps - Chrome Folding, with Integral LED, Rear of Body — Y___N___

BODY REAR STEPS

There shall be large polished, chrome plated, cast aluminum folding steps, each with integral LED light, on both sides of the rear, in sufficient quantities, to meet NFPA regulations for the height configured by the body and tank chosen.

One (1) 57-20-7940 — Steps - Chrome Folding w/ LED, (3) LS, Body Frt w (2) 8" Rails, NA Top Mt — Y___N___

BODY FRONT STEPS

There shall be three (3) large polished, chrome plated, cast aluminum folding steps, each with integral LED light, on the driver's side front of the body.

Two (2) 8" grab rails shall be provided on the front driver's side of the body, as high as possible in compliance with NFPA 1901 requirements for 3-point contact for access and egress at that location.

Two (2) 57-25-808A — Handrail - Body, 8", Aluminum, Knurled — Y___N___

The 8" handrails shall be knurled aluminum.

All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between

them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

One (1) 57-20-7970 — Step - Chrome Folding w/ LED, (1) RS, Body Front with (1) 8" Rail, NA w Top Mt — Y___N___

BODY FRONT STEP

There shall be one (1) large polished, chrome plated, cast aluminum folding step with integral LED light on the officer's side front of the body.

One (1) 8" grab rail shall be provided on the front officer's side of the body, as high as possible in compliance with NFPA 1901 requirements for 3-point contact for access and egress at that location.

One (1) 57-25-808A — Handrail - Body, 8", Aluminum, Knurled — Y___N___

The 8" handrails shall be knurled aluminum.

All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

One (1) 57-25-0210 — Handrails - (2) 30" AL, Vertical, each Side, Body Rear — Y___N___

HANDRAILS

One (1) handrail, a minimum of 30" long, shall be provided and installed on each rear beavertail or body side. Each handrail shall be located so as to provide a 3-point stance while climbing onto and off the rear step. The top of the handrail stanchion shall be located approximately 66" from the rear step.

The handrails shall be 1-1/4" diameter extruded, knurled, aluminum with a bright anodized finish. All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

One (1) 57-25-0310 — Intermediate Cross Rail - (1) AL, Below Hose Bed, Body Rear — Y___N___

INTERMEDIATE CROSS RAIL

One (1) intermediate cross rail shall be installed below the hose bed. The rail width shall match the rear compartment width, or less if other components interfere.

The cross rails shall be 1-1/4" diameter extruded, knurled, aluminum with a bright anodized finish. All cross rail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

Two (2) 57-25-8000 Handrail - Body, 18", Aluminum, Knurled, Additional (Ea) Y___N___

ADDITIONAL HANDRAIL(S)

Two (2) 18" knurled aluminum handrail(s) shall be provided and mounted on the body. Handrail(s) shall be supported by chrome plated stanchions and be of similar construction and utilize the same mounting hardware as the other handrails on the apparatus, i.e. serrated exterior surface with rubber inserts, rubberized gaskets, stainless steel bolts, etc.

Two (2) 57-25-8190 Handrail Location - Determined at Time of Order Y___N___

The location of the handrail(s) shall be determined at the time of order.

Two (2) 57-25-8100 Handrail - Body, 8", Aluminum, Knurled, Additional (Ea) Y___N___

ADDITIONAL HANDRAIL(S)

Two (2) 8" knurled aluminum handrail(s) shall be provided and mounted on the body. Handrail(s) shall be supported by chrome plated stanchions and be of similar construction and utilize the same mounting hardware as the other handrails on the apparatus, i.e. serrated exterior surface with rubber inserts, rubberized gaskets, stainless steel bolts, etc.

Two (2) 57-25-8190 Handrail Location - Determined at Time of Order Y___N___

The location of the handrail(s) shall be determined at the time of order.

Four (4) 57-30-0110 Rub Rail, Body Sides - Black Poly (Ea) Y___N___

RUB RAIL - BODY SIDES

Four (4) Black poly rub rails shall be provided along the lower portion of the body, beneath the compartment doors, on each side to prevent damage to the body and finish. The rub rails shall be a minimum of 2-3/8" wide x 1" deep, and shall be mounted on rubber supports. The rub rails shall have a 1" x 1" chamfer at the front and rear of the rails. The rails shall protrude a minimum of 1.75" from the face of the body.

One (1) 57-30-1160 Rub Rail, Body Rear - Black Poly, Split Y___N___

RUB RAIL - BODY REAR

Two (2) black poly rub rails shall be provided along the lower portion of the rear of the body, one on each side of the rear bulkhead, to prevent damage to the body and finish. The rub rail shall be a minimum of 2-3/8" wide x 1" deep, and shall be mounted on rubber supports. The rub rail shall have a 1" x 1" chamfer on both ends of the rail. The rail shall protrude a minimum of 1.75" from the face of the body.

One (1) == Misc. Equipment - SFA Chassis Pumper - 0.000 == Y___N___

One (1) Receptacle - 120V, 20 Amp for Cab Interior, Shoreline Powered (Ea) Y___N___
70-05-1920

120 VOLT SHORELINE POWERED RECEPTACLE(S) IN CAB INTERIOR

One (1) 120-volt, 20 amp, 3-wire receptacle(s) shall be provided in the cab interior in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

One (1) NEMA Rating - 5-20R (20 Amp) Non-Twist-Lock, Duplex Y___N___
70-05-2535

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Duplex.

One (1) Receptacle Cover - Stainless Steel Wall Plate (Interior Use Only) (Ea) Y___N___
70-05-2720

One (1) stainless steel wall plate(s) shall be installed.

One (1) Receptacle Location - As Specified Y___N___
70-05-2760

The receptacle shall be located:

One (1) Receptacle - 120V, 20 Amp for inside Body Compartment, Shoreline Powered (Ea) Y___N___
70-05-195B

120 VOLT SHORELINE POWERED RECEPTACLE IN BODY COMPARTMENT(S)

A 120-volt, 20 amp, 3-wire receptacle shall be provided inside one (1) body compartment(s) in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

One (1) NEMA Rating - 5-20R (20 Amp) Non-Twist-Lock, Single Y___N___
70-05-2530

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Single.

One (1) Receptacle Cover - Stainless Steel Wall Plate (Interior Use Only) (Ea) Y___N___
70-05-2720

One (1) stainless steel wall plate(s) shall be installed.

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One (1) 70-05-2760 — Receptacle Location - As Specified — Y___N___

The receptacle shall be located:

One (1) 71-0V-A7MB — Cab 12V Frt Brow Mt Light - HiViz #FT-B-72-ML-B, Combo,Blk, w Clearance Lts (Ea) — Y___N___

CAB 12V FRONT BROW MOUNT LIGHT(S)

One (1) FireTech HiViz LED combination pattern model FT-B-72-ML-B, 75.12" brow light(s) shall be mounted to the cab front brow. The light head shall have 59 LED and shall provide 28,512 raw lumen/19,958 effective lumens and draw 22.5 amps total. A combination spot, scene and flood pattern shall be provided, along with five (5) DOT clearance lights. It shall operate at 12 volts DC.

The light head and mounting bracket shall be black.

One (1) 71-1Z-0009 — Cab Front Brow Mount Location - Center — Y___N___

The mount shall be on the center of the cab front brow.

One (1) 71-UH-0019 — Light Mount - (9) HiViz Pedestal Feet, per Light — Y___N___

Nine (9) HiViz pedestal feet shall be provided to mount the HiViz light.

Two (2) 71-Y0-0025 — 12V Light Switched at Cab Dash & 2nd Location with 3 Way Momentary Switch (Ea) — Y___N___

Two (2) 12 volt light(s) shall be switched at the cab dash and a second location with a 3-way momentary switch.

The second location for the switch shall be: officer's side zone 7

Two (2) 71-4V-GE0C — Cab 12V Surface Mt - HiViz #FT-GESM, Guardian Elite, Chrome (Ea) — Y___N___

CAB 12V SURFACE MOUNT LIGHT(S)

Two (2) HiViz model FT-GESM, 12 volts, Guardian Elite LED, 7" x 9" surface mount light head(s) shall be installed on the cab side(s). Each light shall have a chrome plated flange.

The light shall be 10 amp, 125 watt and generate 20,000 raw lumens/ 12,500 effective lumens.

Two (2) 71-5Z-0010 — Cab Surface Mt Light Location - Between Frt Cab Door & Crew Cab Side Window — Y___N___

The cab surface mounted lights(s) shall be located between the front cab door and the crew cab side window.

Two (2) 71-Y0-0010 — 12V Light Switched at Cab Dash (Ea) — Y___N___

Two (2) 12 volt light(s) shall be switched at the cab dash.

Two (2) 71-Y0-0420 — Light Shall Activate When Cab Door on that Side Opens — Y___N___

The light shall activate when a cab door on that side opens.

Two (2) 71-EV-A20B — Body Side 12V Roof Mt Light - HiViz #FT-MB-18-F-B-GWA0011, Flood Only,Black (Ea) — Y___N___

BODY SIDE 12V ROOF MOUNT LIGHT(S)

Two (2) FireTech HiViz LED model FT-MB-18-F-B-GWA0011, approximately 25.2" long mini brow flood lights shall be mounted to the body roof with a TRGWA mount, parallel to the edge. The light head shall have 18 LED and shall provide 9,504 raw lumen/6,660 effective lumens and draw 7.5 amps. It shall operate at 12 volts DC.

The light head and mounting bracket shall be black.

Two (2) 71-FZ-0010 — Body Side Roof Mount Light Location - As Specified — Y___N___

The body side roof mounted light(s) shall be located as follows:

On the catwalk over the rear axle on each side of the body

Two (2) 71-Y0-0010 — 12V Light Switched at Cab Dash (Ea) — Y___N___

Two (2) 12 volt light(s) shall be switched at the cab dash.

One (1) 90-00-0100 — Ground Ladders - Pumpers, Duo-Safety, 48' — Y___N___

GROUND LADDERS

Ladders shall be provided in full compliance with NFPA 1901 requirements for pumper trucks. Forty-eight (48) feet of Duo-Safety ladders shall be provided as follows:

- One 24 ft., 2-Section — Model 900-A
- One 14 ft., Roof — Model 775-A
- One 10 ft., Folding — Model 585-A

One (1) 90-00-950A — Ladder Compartment for Duo-Safety 10 ft Folding Ladder - AL w/ Brushed Door — Y___N___

FOLDING LADDER COMPARTMENT

One (1) aluminum compartment shall be located on the officer's side for storage of the Duo-Safety 10 foot folding ladder. The compartment shall be painted job color and have a door with a vertical brushed finish and a lift and turn latch.

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One (1) 90-00-950M	Ladder Compartment Location - Above Ground Ladders	Y___N___

The ladder compartment shall be located above the ground ladders.

One (1) 90-00-9520	Ladder Brackets & Pull/Twist Clamps f/ Hydraulic Ladder Rack	Y___N___

LADDER BRACKETS

There shall be two stainless steel fabricated ladder brackets with an unpainted finish used to install the ladders on the hydraulic ladder rack. The ladder brackets shall bolt to horizontal adjustable stakes on the rack.

Polished aluminum pull/quarter turn type ladder clamps shall be provided for the ground ladders. They shall be vertically adjustable up and down independent of the ladder brackets. Clamps shall be attached to a stainless steel spring loaded shaft. Clamp spring tension shall be adjustable. The spring assembly shall be fully enclosed within a white metal cast housing. Housing shall be painted a silver/gray color. A vertically adjustable rubber bumper shall be placed in the ladder bracket mounting guide to serve as a stop or rest for the inside lower ladder beam and to prevent it from hitting and damaging the body sides.

One (1) 90-00-9700	Ladder Brackets - Leather Lined	Y___N___

LEATHER LINED BRACKETS

The ladders brackets shall be leather lined to prevent damage to the ladders.

One (1) 90-05-0100	Pike Poles	Y___N___

PIKE POLES/MOUNTING

The following pike poles shall be furnished:

One (1) 90-05-3400	Pike Pole - 10' Nupla SPD-10 with "I" Fiberglass Handle (Ea)	Y___N___

PIKE POLE(S)

One (1) 10 ft. Nupla SPD-10 pike pole(s) with "I" fiberglass handle(s).

One (1) 90-05-4100	Pike Pole - 6', Fire Hooks NHF-6 with Fiberglass Handle (Ea)	Y___N___

PIKE POLE(S)

One (1) 6 ft. Fire Hooks Unlimited NHF-6 pike pole(s) with fiberglass handle(s).

Four (4)	Pike Pole Mounting - Aluminum Tube (Ea)	Y___N___

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90-05-6550

ALUMINUM TUBE PIKE POLE MOUNT(S)

Four (4) aluminum tube(s) shall be mounted to facilitate storage of pike poles.

The mounting tube (s) shall be located : on streetside body riser

Four (4) 90-05-718B — Pike Pole Mount Location - Behind Ground Ladders on Body Side — Y___N___

The pike pole mount shall be located behind the ground ladders on the side of the body.

Four (4) 91-02-3990 — Pike Pole Tube Finish - Mill Finish (Ea) — Y___N___

PIKE POLE TUBE FINISH

Four (4) pike pole tube(s) shall have a mill finish.

One (1) 90-21-0300 — Wheel Chocks - (2) Zico SAC-44-E Folding Aluminum (Pumper) — Y___N___

ZICO FOLDING ALUMINUM WHEEL CHOCKS

Two (2) folding aluminum wheel chocks Model SAC-44-E shall be furnished and shipped loose with the apparatus. Two (2) SQCH-44-H holders shall be installed by the manufacturer on the left side of the body, one in front of and one behind the rear wheel.

One (1) 90-25-0210 — Spare Hardware Kit - Apparatus — Y___N___

SPARE HARDWARE KIT

An assortment of nuts, bolts, capscrews, washers and other hardware used in vehicle construction shall be provided.

One (1) — == Paint & Striping - SFA Chassis Pumper - 0.000 == — Y___N___

One (1) 91-00-1000 — Paint - Preparation, Processes & Finish — Y___N___

PROCESSES

The following processes shall be employed in the finishing of the apparatus:

MANUAL SURFACE PREPARATION

All metal surfaces on all custom body and cabs shall be thoroughly cleaned and prepared for paint. Surfaces that shall not be painted include all chrome plated, polished stainless steel and bright aluminum tread plate. As required, weld seams and other areas shall be caulked to prevent water leaks or for appearance reasons. Each imperfection on the exterior metal surface shall be removed or filled and then sanded for a smooth flat appearance.

CHEMICAL CLEANING AND TREATMENT

All painted surfaces shall be washed with a chemical degreaser, cleaner and surface conditioner to allow for proper adherence of primer coat. Then they shall be washed with a neutralizer product. All products used are approved by paint supplier and applied under strict process control to meet performance requirements on corrosion prevention and chip resistance.

PRIMER / SURFACE COATING FOR TOP COAT APPLICATION

A minimum of 2 coats of Epoxy based primer shall be applied to surfaces inside and outside of cabs and bodies and all other parts of apparatus that shall receive a Top color coat to achieve required corrosion protection. After that a minimum of 2 coats of sealer shall be applied over the primer surface. The overall thickness of the primer/sealer coat shall be between 3 to 8 mils wet. Once dried and cured all surfaces that shall receive a top coat shall be hand sanded to achieve a flat and smooth surface to meet gloss and other paint quality standards. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with Seagrave's Paint Quality Standard. The underside of the cab and body shall be finished with one coat of epoxy primer specifically designed for this application to prevent corrosion and provide chip resistance to typical paved road conditions.

TOP COAT APPLICATION

Each Top Coat final color on the apparatus is applied using a two stage paint process. The unit shall be thoroughly hand cleaned to eliminate dust residues and to detect any imperfection in the surfaces to be painted. A fast drying 3.5 VOC polyurethane base coat color shall be applied using a cross coat application technique. Additional coats may be applied as required until the coat thickness reaches 2.0 to 6.0 mils wet and a full hide appearance. If a second color is required, proper masking shall be applied to the unit and the base coat application process shall be repeated for the second color. A slow drying low VOC High Build clear coat shall be applied using a cross coat application technique until a minimum of 5.0 mils wet is achieved. The unit is then properly heated to assure flash and cure of the paint before leaving the paint booth. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according to Seagrave's Paint Quality Standard.

Each batch of color topcoat shall be tested for precise color match following paint supplier color matching process. A visual color match shall be checked prior to paint using customer approved paint chips.

The cab and body shall be primed and finish painted prior to installation on the chassis to ensure paint coverage in all areas including the difficult to reach places. The exterior and interior of the cab shall be finish painted before the doors are installed or any assembly is started to ensure a finish painted surface beneath all trim items.

PRIMER / SURFACE COATING FOR SINGLE COAT APPLICATION

A minimum of 2 coats of Epoxy based primer shall be applied to all surfaces of the apparatus that shall receive a single color coat to achieve required corrosion protection. This is a wet coat process and it shall achieve a 3.0 to 8.0 mills wet thickness and complete coverage of all bare metal. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with Seagrave's Paint Quality Standard.

SINGLE COAT APPLICATION

A minimum of 2 coats of direct gloss paint shall be applied over all primed surface to achieve corrosion protection and appearance in accordance with Seagrave's Paint Quality Standard. This application shall be used for Gloss Black, Job Color and Color finishes in parts of the apparatus such as frame rails, outriggers, ladders and other aerial devices, suspension and other chassis parts, etc. as defined in the sales order.

ZOLATONE COAT APPLICATION

All areas to receive a Zolatone coat shall be primed following the primer/surface coating for top coat application. A high pressure coat of Zolatone paint shall be applied in a cross pattern technique to achieve smooth finished surface. A second low pressure coat of Zolatone paint shall be applied in a single pattern to achieve a textured appearance.

ZOLATONE CLEAR COAT APPLICATION

Starting with a completed and dry Zolatone coat application 2 to 3 coats of Zolatone clear coat shall be applied until a thickness of 5.0 mills wet is achieved.

PAINTERS

All painters shall be paint supplier certified. They shall be re-certified periodically in order to keep up to current standards and procedures required by the coatings manufacturer. This certification is performed independently by the paint supplier.

FACILITY

The finishing facility shall be certified independently by the paint supplier by meeting or exceeding its extensive and stringent requirements. The paint facility shall be audited quarterly by the paint supplier to ensure proper equipment, procedures and safety regulations are being used and adhered to in addition to the controls implemented by Seagrave to assure paint quality requirements are met in every job.

QUALITY STANDARDS

The finish quality and appearance shall be in accordance with the Seagrave's Paint Quality Standards for dirt, gloss, reflectivity, clarity and depth of image. The standard is available to the customer at any time upon request.

One (1) 91-00-4800 Seagrave FrameGard Extreme Corrosion Resistance - Single Axle Y___N___

FRAME & UNDERCARRIAGE FINISH

The chassis frame, bumper extension, suspension, axles, air tanks, fuel tank, battery boxes, etc., shall be matte black finish as supplied by the component manufacturer.

The following items will be furnished with the finish as provided by their respective manufacturer.

- Engine, transmission and accessories.
- Exhaust system.
- Retarder (when furnished).
- PTO & hydraulic pump (when furnished).
- Cab lift cylinders & hydraulic pump.
- Shock absorbers.
- Fuel filter.
- Air drier and air cleaner.
- Electrical wiring and loom.
- Air brake lines, valves and mounting brackets.

SEAGRAVE FRAMEGARD

A corrosion barrier film shall be sprayed to all surfaces of the chassis frame rail(s) and cross members after frame assembly. Manual touch up shall be applied where/as necessary. The barrier shall be a corrosion inhibiting sealant which shall provide extreme resistance to abrasion and chemical deterioration. The sealant shall pass US Military spec MIL-C-0083933A for bend resistance, chip resistance and flexibility. It shall pass ASTM B117 (1000 hours corrosion resistance test standard).

One (1) 91-00-480X Gloss Black Paint On Chassis Components Y___N___

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GLOSS BLACK PAINT ON CHASSIS COMPONENTS

The following items shall have an additional coat of gloss black paint applied over the primed surface as supplied by the component manufacturer. Single coat application process shall be used to apply Gloss Black direct gloss paint on the parts identified below:

Front & rear axles and suspension.
Fuel tank.
Air reservoir tanks.
Pump module mounting brackets.
Body mounting brackets.
Steering gear box and steering link arm.
Drive shafts.
Front discharge plumbing
Front Suction plumbing

One (1) 91-00-5100 — Paint - Cab Interior, Black Zolatone Paint — Y___N___

CAB INTERIOR PAINT FINISH

The inside of the cab shall be painted with black Zolatone paint following the Zolatone Coat application process.

The following components shall be painted:

- Exposed interior surfaces of the cab structure
- Exposed interior surfaces of the driver/officer/crew doors
- All interior "Metal" access/wire covers of the cab
- Head bumper brackets
- Miscellaneous brackets, if present: camera mounts, non-recessed radios, charger covers.

One (1) 91-00-5400 — Paint - Cab Interior, Clear Coat (Full Tilt Cabs) — Y___N___

PAINT INSIDE OF CAB

The inside of the full tilt cab shall be clear coated following the Zolatone Clear Coat application process in the same components that received a Zolatone application.

One (1) 91-00-5510 — LINE-X® - Textured, Cab Interior — Y___N___

LINE-X® - CAB INTERIOR

All cab interior LINE-X® shall have a textured finish.

One (1) 91-00-5900 — Paint - Cab Exterior, One Color — Y___N___

SINGLE COLOR CAB PAINT

The cab shall be painted one color. The paint shall follow the Top Coat application process for a single color.

Cab exterior paint number is #_____Color:_____.

Note: Paint prices do not allow for metallic or pearlescent paint colors.

One (1) 91-00-A110 — Cab Decorative Trim Molding - 5G Radius — Y___N___

A decorative molding shall be provided around the cab. The decorative molding shall be horizontal across the front of the cab above the wipers and taper down with a radius even with the outside corners of the grille.

One (1) 91-02-1000 — Paint - Body Exterior, Single Color — Y___N___

BODY PAINT, SINGLE COLOR

The body of the apparatus shall be painted to match the primary cab color. The paint shall follow the Top Coat application process for a single color.

Body exterior paint number is #_____Color:_____.

One (1) 91-02-2AZ0 — Finish - Operator Stand/Pump/Valves/Plumbing, Mill Finish except Exposed Pipe — Y___N___

OPERATOR STAND FINISH

The operator stand compartment interior, pump, intake and discharge valves, drains, drain lines, and foam system components, and all hard piping, shall have mill finish.

All exposed pipe (not including cut threads) at the rear of the truck or welded pre-connect assemblies at the front of the body shall be painted.

One (1) 91-02-4500 — Standard Finishes for Small Parts - Chassis, Cab — Y___N___

STANDARD FINISHES FOR SMALL PARTS, CUSTOM CAB

Definition: Mill Finish: as is from the manufacturer; no finish applied. It may have scratches, but it shall be shiny as a result of being cleaned through a deoxidization process. Parts with mill finish may have been cleaned in a dipping process to deoxidize the part.

Definition: Etchfinish: The part(s) shall be cleaned and etched to a uniform bright finish.

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CHASSIS

Chassis bracket: Painted same as cab exterior

CAB

- Cab compartments, including cab side access compartments:
  - o Exterior Finish: LINE-X®.
  - o Interior Finish:
    - Δ Mill finish
    - Δ Upgrade available to DA or Paint

- Cab compartment shelves:
  - o DA -Just the outside edge of the shelf shall be DA'd.
  - o All other surfaces shall be mill finish.

- Bumper / running board hose wells:
  - o Flange: DA
  - o Interior & exterior walls: Mill finish
  - o If the hose well sticks above the gravel pan: DA the edges

- Inner liners: Mill finish

- All steps, including pull downs & those on access ladders: DA outsides

- Hat Section Bracket for Compartment, Ground or Step Lights:
  - o Mill finish.
  - o If compartment is painted, then the hat section brackets shall be painted.

- Trim Rings: Mill finish

- Patch plates: Brushed S/S (Upgrade available to polished or ATP) STD is No patch plates

- Label backing plates: DA

- Marker light guards: As purchased

- Switch guards – S/S: Brushed

- Pike poles tubes - Aluminum:
  - o D/A
  - o Upgrade available to paint

• Pike poles tubes – S/S:
o D/A
o Upgrade available to paint

One (1) 91-02-4505 Standard Finishes for Small Parts - Operator Stand, Plumbing Y___N___

STANDARD FINISHES FOR SMALL PARTS, OPERATOR STAND AND PLUMBING

Definition: Mill Finish: as is from the manufacturer; no finish applied. It may have scratches, but it shall be shiny as a result of being cleaned through a deoxidization process. Parts with mill finish may have been cleaned in a dipping process to deoxidize the part.

Definition: Etchfinish: The part(s) shall be cleaned and etched to a uniform bright finish.

FINISHES:

• Plumbing: Pump, intake & discharge valves, drains, all hard piping*, including pipes protruding from the pump panel:
o Mill finish
o Upgrade available to job color

♦ All exposed pipe (not including cut threads) at the rear of the truck or welded pre-connect assemblies at the front of the body shall be painted job color.

♦ All pipe holding brackets made of black steel shall be painted black, or job color if the whole surrounding area is painted job color.

• Pump enclosure interior:
o Mill finish
o Upgrade available to job color

• Open bin interior surfaces:
o Mill finish (or ATP if that is the original surface).
o In no cases, paint unless “specialed” by the customer.

• Crosslays –
o Inside surfaces – DA
o Partitions - DA

• Speedlays:
o With pull out tray- DA

• Heat Pans:
o Mill finish
o Upgrade available to DA or paint color of underside

• Running Board w/ Floating Trough:
o Frame shall be painted black.

One (1) 91-02-4510 Standard Finishes for Small Parts - Body Only Y___N___

STANDARD FINISHES FOR SMALL PARTS, BODY ONLY

Definition: Mill Finish: as is from the manufacturer; no finish applied. It may have scratches, but it shall be shiny as a result of being cleaned through a deoxidization process. Parts with mill finish may have been cleaned in a dipping process to deoxidize the part.

Definition: Etchfinish: The part(s) shall be cleaned and etched to a uniform bright finish.

BODY

• Bumper / running board hose wells:
o Flange: DA
o Interior & exterior walls: Mill finish
o If the hose well sticks above the gravel pan: DA the edges

• Inner liners: Mill finish

• All steps, including pull downs: DA outsides
•
• Hat Section Bracket for Compartment, Ground or Step Lights:
o Mill finish.
o If compartment is painted, then the hat section brackets shall be painted.

• Trim Rings: Mill finish

• Patch plates:
o STD is No patch plates
o Brushed S/S
o Upgrade available to polished or ATP

• Label backing plates: DA

• Marker light guards: As purchased

• Switch guards – S/S: Brushed

- Compartment louvers: Same color as compartment interior walls,

- Compartment shelves & trays:
  - o DA (Just the outside edge of the shelf shall be DA'd. All other surfaces shall be mill finish.
  - o Upgrades available: Paint Zolatone or job color. All surfaces shall be painted.

- Compartment shelf & tray brackets: Mill finish

- Brackets to hold compartment doors open: Mill finish

- Compartment door auxiliary locking brackets: Brushed

- Rear aluminum compartments:
  - o Mill finish
  - o Upgrade available to paint

- Rear aluminum compartment door interiors:
  - o ATP Exterior Door: DA Finish Interior
  - o Smooth Exterior Door: Etchfinish Interior

- Breaker box mounting brackets: Mill finish

- Pegboard:
  - o Mill finish
  - o Upgrade available to DA

- Ladders-Thru Compartments:
  - o Mill finish
  - o Upgrade available to paint

- Partition mounting brackets: Mill finish

- Hydraulic ladder rack:
  - o Etchfinish
  - o Upgrade to paint Job color

- Ground ladder brackets: Etchfinish

- Ground ladder or suction racking (fixtures, slides) within compartments: Mill finish

- Pike poles tubes - Aluminum:
  - o D/A
  - o Upgrade available to paint

• Pike poles tubes – S/S:
o D/A
o Upgrade available to paint

• Wheel chock holders: Mill finish

One (1) 91-02-4550 Acorn Nuts - Standard Operating Procedure for Use Y___N___

ACORN NUTS

Acorn nuts shall be installed on all exposed screws and bolts in areas where personal injury may result and/or damage to equipment may occur. For further details, please refer to the enclosed standards document.

One (1) 91-02-4590 Compartment Locations - Seagrave Definition for Component Locations Y___N___

COMPARTMENT LOCATIONS - SEAGRAVE DEFINITION FOR COMPONENT LOCATIONS

All definitions are based on facing the opening to the compartment.
These definitions apply to all compartments.

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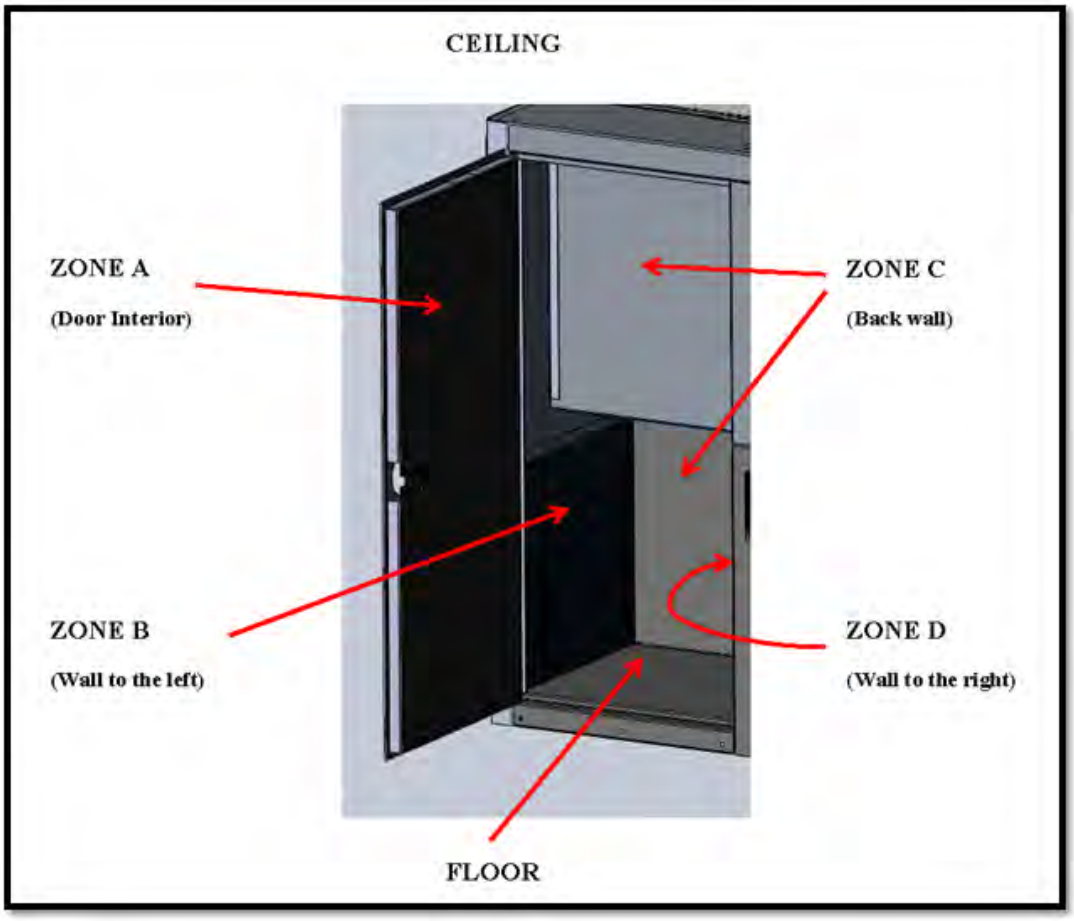

One (1) 91-02-9020 Undercoating - PPG Corashield Y___N___

UNDERCOATING

The apparatus shall be properly undercoated with PPG Corashield.

The underside of the vehicle, including body and cab, shall receive a spray-on application of black Corashield which is a heavy duty, pliable, waterborne, zero-VOC product with excellent resistance to chipping, cracking and corrosion. It shall also have excellent soundproofing qualities. The material shall be sag resistant and applied to a mil thickness of 5 to 10 with a cure time of 72 hours.

The material shall be applied in the following areas:

- Body and cab, fender wheel well areas.
- Underside of body compartments and cab floor structure.
- Underside of body sub-frame.
- Exterior of body compartment rear walls, up to top of water tank.

One (1) 91-03-1600 — 6" Reflective Striping - Roll-up Doors — Y___N___

REFLECTIVE STRIPING

A 6" reflective stripe shall be provided around the perimeter of the vehicle. At least 50 percent of the cab and body sides, at least 50 percent of the rear body width and at least 25 percent of the width of the cab front shall have reflective material affixed to it per NFPA standards.

Exact location and presentation on the apparatus where the striping shall be installed:

_____

One (1) 91-03-290A — Reflective Striping Color shall be White — Y___N___

The reflective striping color shall be white.

One (1) 91-03-3000 — 1" Border - Each Side of Reflective Stripe — Y___N___

1" REFLECTIVE STRIPING

A one inch border shall be provided just above and below the large reflective apparatus striping.

One (1) 91-03-290A — Reflective Striping Color shall be Blue — Y___N___

The reflective striping color shall be Blue

One (1) 91-03-3820 — Chevron Striping - 3M™ Diamond Grade™, Front Bumper — Y___N___

CHEVRON STRIPING

The front bumper shall be covered with 6" wide 3M™ Diamond Grade™ Reflective striping in an alternating chevron pattern with the stripes running at a 45 degree downward angle from the top center of the bumper.

One (1) 91-03-4830 — Chevron Color - Scotchlite™ Red 983-72NL & Scotchlite™ Fluor Yellow-Green 983-23 — Y___N___

The chevron striping shall be alternating Scotchlite™ Red 983-72NL and Scotchlite™ Fluorescent Yellow-Green 983-23.

Clear chip guard shall be provided on the cut ends of Diamond grade chevron if edge is exposed.

One (1) 91-03-4100 Chevron Striping - Body Panels below Hose Bed Only Y___N___

CHEVRON STRIPING

The rear facing body panel under the hose bed shall be covered with 6" wide reflective striping in an alternating Scotchlite™ Red #680-72 and Scotchlite™ Yellow #680-71 chevron pattern with the stripes running at a 45 degree downward angle from the top center of the vehicle.

One (1) 91-04-0009 Graphics Allowance Y___N___

GRAPHICS ALLOWANCE

A graphics allowance of **$3000** shall be provided, to complete customer requested graphics and lettering of the apparatus.

If the graphics amount is less than the allowance, additional money shall be returned to the customer.
If the graphics amount exceeds the allowance, the customer shall be responsible for the additional charge.

One (1) 91-04-000A Graphics Files Formats Y___N___

GRAPHICS FILES FORMATS

In order to produce the desired lettering, seals and/or emblems, the customer shall provide graphics files of the lettering, seals and/or emblems in the following file formats:

- Vector images (Ai or EPS file types)
- Full Color (CMYK) version or
- Full color Pantone version, if exact color matching is required

The customer shall also provide the name and size of font for any graphics text, if specific font is desired.

One (1) 91-04-9900 Apparatus Logos and Name Plaques Y___N___

APPARATUS LOGOS AND NAME PLAQUES

Logos and name plaques shall be placed on the apparatus as identified on the attached PDF.

One (1) == Warranty & Docs - SFA Chassis Pumper - 0.000 == Y___N___

One (1) 91-50-012A — Seagrave Limited Warranty - 2 Years Parts & Labor, Pumper — Y___N___

MANUFACTURER'S LIMITED WARRANTY

A Seagrave limited two (2) year warranty for parts and labor shall be provided.

One (1) 91-50-0205 — Seagrave Limited Warranty - Cab, Structural - 15 Years — Y___N___

CAB FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A Seagrave cab limited fifteen (15) year structural warranty shall be provided.

One (1) 91-50-030S — Seagrave Limited Warranty - Stainless Steel Body, Structural - 15 Years — Y___N___

STAINLESS STEEL BODY FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A Seagrave limited stainless steel body fifteen (15) year structural warranty shall be provided.

One (1) 91-50-0510 — Seagrave Limited Lifetime Warranty - Frame Rail & Cross Members, Structural — Y___N___

CHASSIS FRAME RAIL & CROSS MEMBER STRUCTURAL LIMITED LIFETIME WARRANTY

A Seagrave limited lifetime frame rail and cross members structural warranty shall be provided.

One (1) 91-50-060B — Seagrave Ltd Warranty - Paint & Corrosion, 10 Years, Pro-Rated, SS, Pumper/ Res — Y___N___

PAINT/CORROSION LIMITED WARRANTY

A Seagrave limited pro-rated paint ten (10) year warranty shall be provided.

One (1) 91-50-0700 — Seagrave Limited Warranty - Pump Plumbing, 10 Years — Y___N___

PUMP PLUMBING LIMITED WARRANTY

A Seagrave limited stainless steel pump plumbing ten (10) year warranty shall be provided.

One (1) 92-00-1000 — Weight analysis - Required if over Minimum NFPA Equipment — Y___N___

WEIGHT ANALYSIS - LOOSE EQUIPMENT

It shall be the responsibility of the purchaser to specify the details of the apparatus; its

required performance, including where operations at elevations above 2000 ft (610m) or on grades greater than 6 percent are required; the maximum number of fire fighters to ride within the apparatus; specific added continuous electrical loads which exceed the minimum of this standard; and any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of this standard.

One (1) 98-50-500C Operation & Parts Manuals w/ Wiring Diagrams - (2) Electronic Copies (Non-Aeria Y___N___

ELECTRONIC OPERATOR'S & PARTS MANUAL

A binder shall be supplied that has electronic copies and paper documents as listed below.

The binder shall contain 2 duplicate electronic copies. Each electronic copy shall have:

- Operations & maintenance instructions for items on the vehicle, except all purchased components. The operations manual shall include locations of the Intelex electrical modules on the apparatus and an Emergency Troubleshooting Guide which includes emergency instructions if the apparatus won't start.
- Material Safety Data Sheets.
- Electrical diagrams including charts illustrating the individual wire color, number code, and function.
- Parts manuals.
- Parts drawings and an overall vehicle layout.
- Certificates
- Warranties

Printed documents shall include:

- Operations & maintenance instructions for items on the vehicle, not including the vendor literature
- Operations & maintenance instructions for engine.
- Certificates of independent test results.
- Warranty documents.
- Manufacturer's record of construction details and engine power curve.
- Vehicle final alignment report.
- Vendor literature provided by the manufacturer that arrives with the purchased component.

One (1) to two (2) manual electronic copies for the water pump shall be included, if there is a pump on the unit, and as provided by the pump manufacturer. Additional electronic copies, as provided by other equipment suppliers, shall also be included.

One (1) 98-50-501P Operation & Parts Manuals w/ Wiring Diagrams - Add'l, OEM, Printed (Non-Aerial) Y___N___

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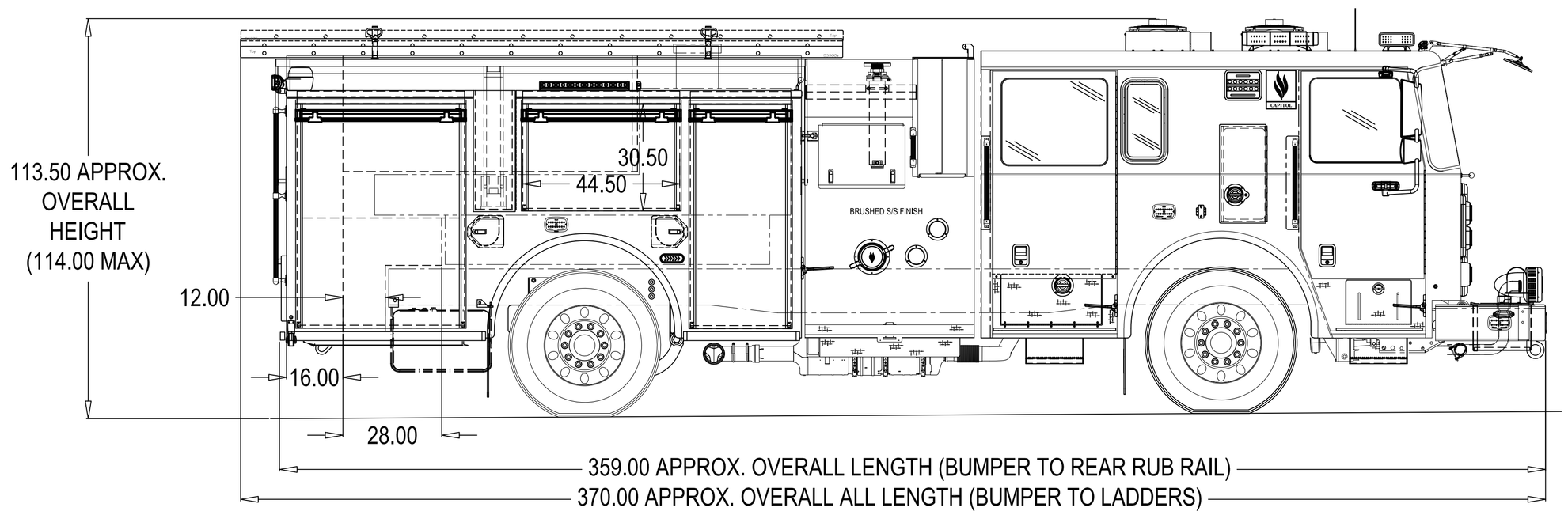
PAPER OPERATOR'S & PARTS MANUAL

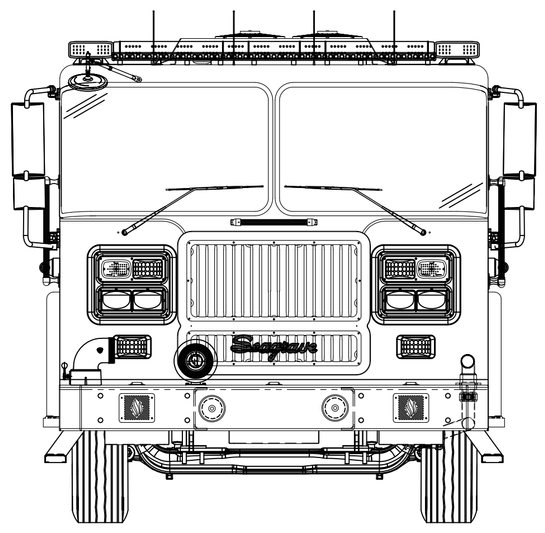
Multiple binders shall be supplied containing paper documents. The binders shall be indexed for easy access to information.

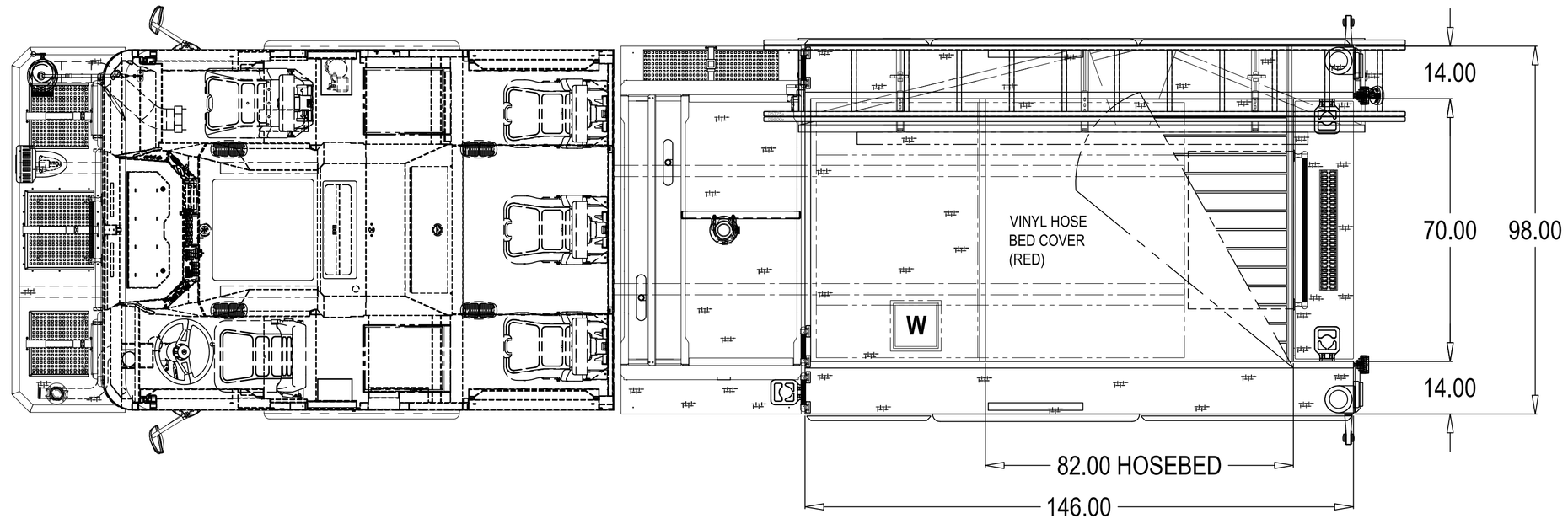
The binders shall contain printed documents of everything on the electronic copy of the Operations & Parts Manuals with Wiring Diagrams that comes standard with the vehicle and includes:

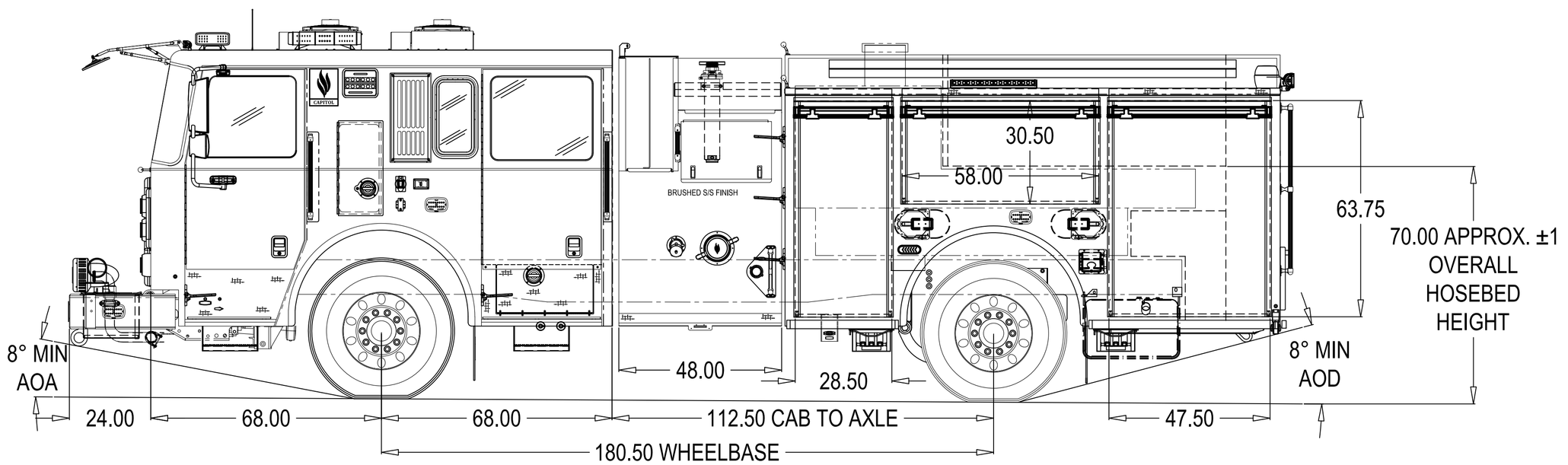
- Operations & maintenance instructions for items on the vehicle, excluding purchased components.
- Material Safety Data Sheets.
- Electrical diagrams including charts illustrating the individual wire color, number code, and function.
- Parts manuals.
- Parts drawings and an overall vehicle layout.
- Certificates
- Warranties

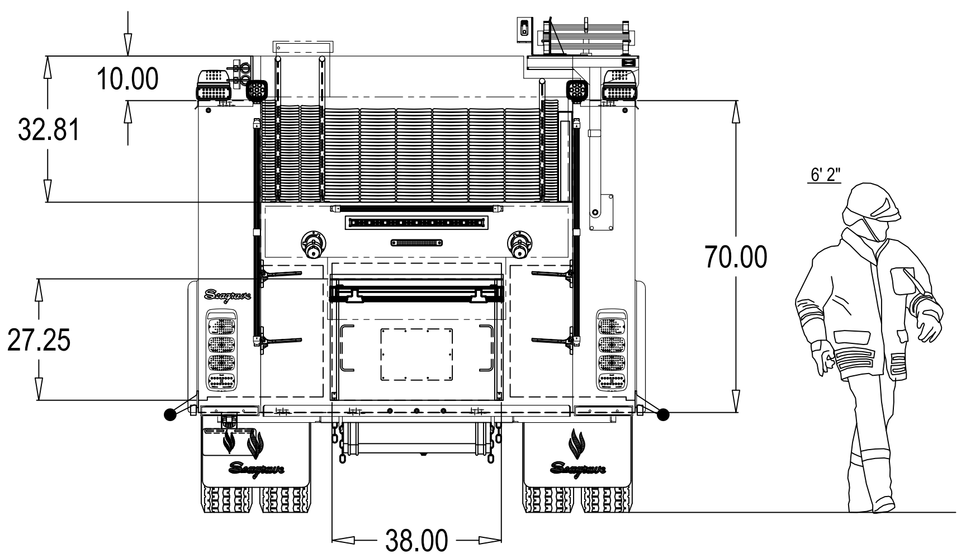
One (1) 99-00-0000	DEALER FURNISHED ITEMS	Y___N___
Two (2) 99-00-1099	DFI 4.5 Discharge Fittings	Y___N___
	Two (2) 4.5 Discharge Fittings and Caps	
Two (2) 99-00-2099	DFI credit	Y___N___











FWD SEAGRAVE HOLDINGS, LP / 105 EAST 12TH STREET
CLINTONVILLE, WI 54929

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KENTUCKY

PREPARED BY: DWL	DATE: 04-08-2022	MODEL: DB50CA
CAB: CAPITOL 136		FRONT AXLE: MFS / 20.0K / DISC
ENGINE: CUMMINS L9 450HP		REAR AXLE: RS-25-160 / 27K / DISC
PUMP: WATEROUS CSU 1500GPM		FRONT TIRES: CO / 315 / 80R22.5 / CONTI HAU 3 WT
BODY: #3CR12 S/S / MATRIX 146 (28)		REAR TIRES: CO / 12R22.5 / HDR2+
TANK: 750 GALLON / L-T / UPF		FOAM: -

HOSE BED CAPACITY:
- 300' OF 1.75" DJ HOSE
- 500' OF 2.50" DJ HOSE
- 1,200' OF 5.00" LDH HOSE
- 300' OF 1.75" DJ HOSE
- (3) ADJ. DIVIDERS

PRELIMINARY DRAWING

F2897

INTERNAL SALES REPRESENTATIVE SIGNATURE OF APPROVAL	SIG. DATE
BSR	04-08-2022

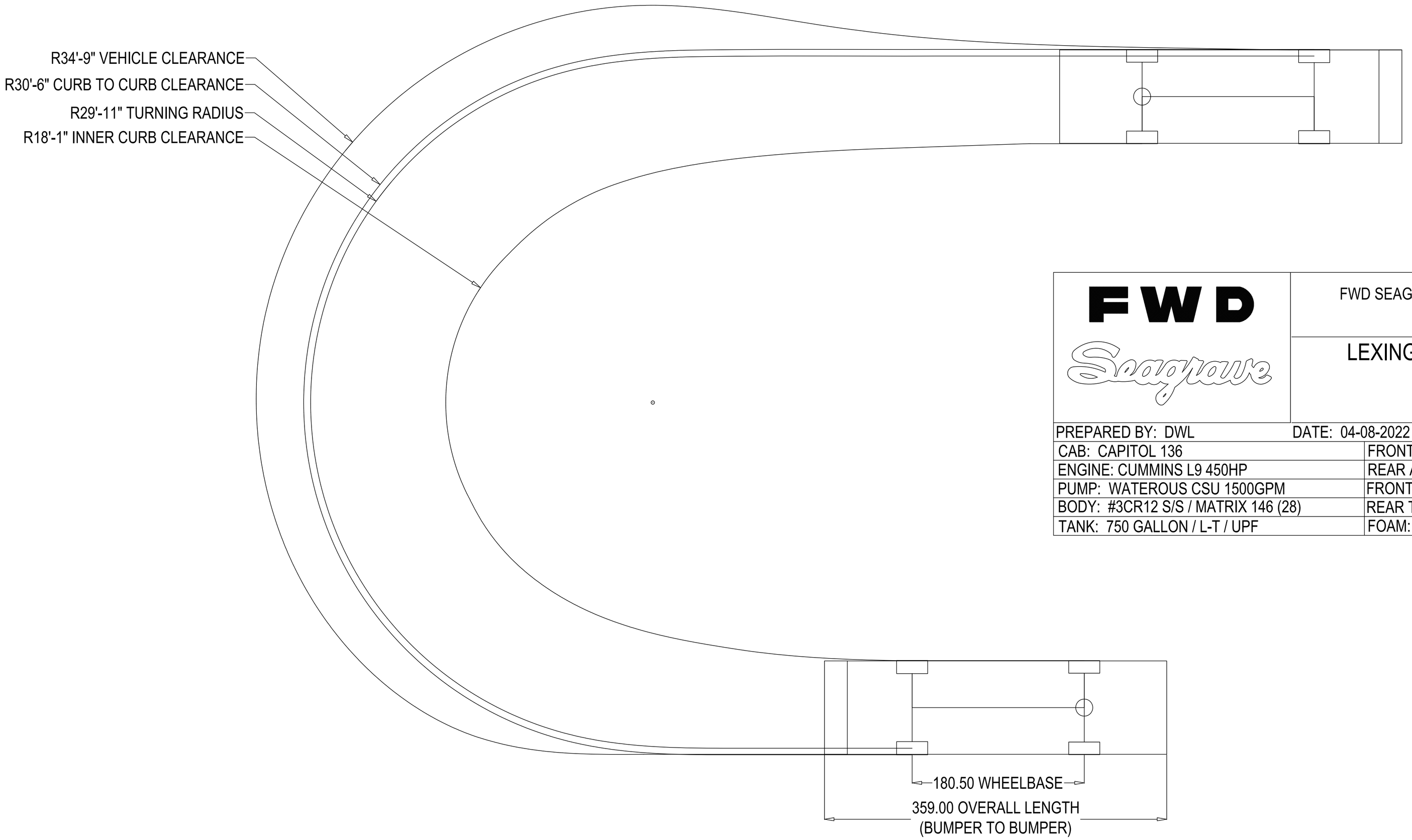
REV.	DATE	DESCRIPTION	REV. BY
-	04-08-2022	QW #10097-0007	DWL

ALL DIMENSIONS ARE MEASURED IN INCHES, UNLESS OTHERWISE NOTED.

THIS DRAWING IS FOR REFERENCE OF CONFIGURATION; MINOR DETAILS MAY NOT BE SHOWN. DIMENSIONS SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE. THE SALES ORDER AND APPROVED SALES ORDER CHANGES WILL PREVAIL, WHERE DISCREPANCIES EXIST.

THE INDICATED VEHICLE HEIGHT REPRESENTS A CALCULATED DIMENSION. ACTUAL SHIPPED HEIGHT MAY VARY.

THE HOSE CAPACITY IS A CALCULATED AMOUNT. ACTUAL CAPACITY MAY VARY DEPENDING ON VENDOR OF THE HOSE.



FWD SEAGRAVE HOLDINGS, LP / 105 EAST 12TH STREET
CLINTONVILLE, WI 54929

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KENTUCKY

PREPARED BY: DWL	DATE: 04-08-2022	MODEL: DB50CA
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BODY: #3CR12 S/S / MATRIX 146 (28)		REAR TIRES: CO / 12R22.5 / HDR2+
TANK: 750 GALLON / L-T / UPF		FOAM: -

TURNING RADIUS DRAWING F3350 T-RAD

ALL DIMENSIONS ARE MEASURED IN INCHES, UNLESS OTHERWISE NOTED.

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THE HOSE CAPACITY IS A CALCULATED AMOUNT. ACTUAL CAPACITY MAY VARY DEPENDING ON VENDOR OF THE HOSE.

SEAGRAVE FIRE APPARATUS, LLC

April 8, 2022

LEXINGTON FIRE DEPARTMENT
LEXINGTON, KENTUCKY

F3350

Drawing Notes:

1. 22-03-14UQ / USB CHARGER PORT LOCATIONS – TBD

2. 23-11-1000 / DOME LIGHTS – The Weldon 8080 dome lights were provided on the drawing. The previous unit had Whelen CREGCS dome lights.

3. 23-12-3010, 23-12-3S80 / STREAMLIGHT FIRE VULCAN HANDLIGHT LOCATIONS – TBD

4. 45-20-4260 / RS COMPARTMENTS SHOULD BE 14" EXTENDED IPO 28" EXTENDED – This change was made, per Brett Romberg's directive. Note: This gives us a 70" wide tailboard.

5. 57-05-3030, 57-05-4015 / ADJUSTABLE SHELF & ADJUSTABLE ROLL OUT TRAY LOCATIONS – TBD

6. 90-05-6550, 90-05-718B / PIKE POLE TUBE LOCATIONS – Specification states the tubes are located behind the ground ladders, in one part, and mounted on the outboard of the street side hose bed riser.. The ground ladders are on a hydraulic ladder rack, so the tubes can not be mounted behind the ladders.

Dealer Service Center and Capabilities

Fire & Specialty Equipment Company, LLC is the selling dealer and will provide all warranty and service required on your new Seagrave Fire Apparatus. We will also provide any required parts and service your new vehicle may require after the warranty period.

Our service center is located in Northern Bullitt County (Shepherdsville, KY) and is approximately 14 miles from the Pleasure Ridge Park Community. There is approximately 10,000 sq. ft. under roof for service area, parts storage, brake area, and offices. Besides our front parking area, we have a rear and side parking arear for fire apparatus which is completely fenced and paved.

We have six (6) fully stocked service vehicles assigned to our service technicians. One (1) of these vehicles has a 4,000# crane for lifting capabilities. Four (4) of our technicians are assigned take-home vehicles and can be called on a 24 hours basis around the clock to perform after hours service calls. We also have one (1) technician with a service vehicle located in Western Kentucky.

Our entire staff is made up of fifteen (15) dedicated individuals and perform many tasks.

1 – Owner
1 – General Manager
7 – Service Technicians
1 – Receptionist
1 – Service Writer
1 – Parts Consultant
1 – Bookkeeper
1 – Seagrave Sales Representative

We welcome anyone to view our facility and speak with any of our staff. If you have any questions, we would be glad to discuss them with anyone from the Fire District.


ENTRANCE

Seagrave Fire Apparatus, LLC
Two Year Limited Warranty

Limited Warranty

Subject to the limitations and exclusions set forth below, and provided the vehicle shall have been placed in service within sixty (60) days after delivery ("Warranty Start Date" or "WSD") to the original purchaser (the "Purchaser") as established by our original invoice, Seagrave Fire Apparatus, LLC ("Seagrave") warrants to the Purchaser that the portions of its custom cab and chassis that are manufactured by Seagrave ("Chassis or Custom Cab" or "Vehicle") shall be free from defects in material and workmanship for a warranty period ending two (2) years after the date of delivery of the vehicle to the original purchaser or the first 20,000 miles of use, or 10,000 hours as determined by engine hours or 10,000 In-Service hours, whichever occurs first ("Warranty Period").

Seagrave's obligation under this warranty is subject to the following conditions precedent: (a) Purchaser must notify Seagrave in writing of the claimed defect within thirty (30) days after the first date of discovery, but in any event prior to the expiration of the warranty period; (b) written approval must be obtained from Seagrave's Customer Service Manager prior to any repair or replacement of any materials covered within this Limited Warranty; (c) unless Seagrave directs otherwise, the claimed defective item(s) shall be returned to Seagrave, or to Seagrave's designee, promptly after the notification. Purchaser shall be responsible for the cost of transportation and for risk of loss or damage to the Vehicle or materials during transportation; (d) Seagrave reserves the right to thoroughly examine the Custom Cab or Chassis, or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed defect is covered by this warranty; (e) repair or replacement must be made by a facility approved in advance, in writing, by Seagrave. Failure to obtain all of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty; and (f) this limited warranty shall apply only if the Vehicle is properly maintained in accordance with Seagrave's maintenance instructions and manuals and is used In Service, which is normal to the particular Vehicle model. Normal service means service, which does not subject the vehicle to stresses or impacts greater than those that normally result from the careful use of the Vehicle. All maintenance performed must be documented for proof of compliance. Such documentation must be made readily available and provided to Seagrave within ten (10) days upon request.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

Notwithstanding anything to the contrary herein, Seagrave makes no warranty whatsoever as to: (a) any other integral parts, components, attachments or trade accessories of or to the vehicle that are not manufactured by Seagrave, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Seagrave shall assign to Purchaser the applicable warranties, if any, made by the respective manufacturers thereof; (b) the Chassis, Custom Cab or their components, any part, attachment or accessory damaged by misuse, neglect, improper maintenance or accident. Any determination of neglect or damage during the full limited warranty term will void this warranty; (c) the Chassis, Custom Cab or their components, any part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Seagrave which, in the sole judgment of Seagrave, adversely affects the performance, stability or purpose for which it was manufactured; (d) any modification or repair performed during the full term of the limited warranty excluding regular scheduled maintenance or the replacement of non-warrantable wearable components without prior written authorization from Seagrave will void this warranty; (e) products or parts which may, in the ordinary use, wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets, filters and light bulbs. Seagrave assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Seagrave; (f) normal maintenance services or adjustments, including but not limited to fuel system cleaning, wheel alignment and balancing, engine tune-up, brake inspection or adjustment, nor to the replacement of fluids, oil seals or filters.

Purchaser's Exclusive Remedy

If the Vehicle fails to conform to the warranty set forth in the limited warranty on this page during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Purchaser must notify Seagrave within the time period specified above and shall make the vehicle and all maintenance records available for inspection by Seagrave or its designated agent. At the request of Seagrave, any allegedly defective Vehicle shall be returned to Seagrave or an authorized Seagrave representative by the Purchaser for examination and/or repair. Purchaser shall be responsible for the cost of all such transportation including loading and unloading and for loss of or damage to the vehicle during transportation. Within a reasonable time, Seagrave shall repair or replace (at Seagrave's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance, in writing, by Seagrave. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

Exclusion of Consequential and Incidental Damages

Notwithstanding anything to the contrary herein or in any agreement between Seagrave and Purchaser, IN NO EVENT SHALL SEAGRAVE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY SEAGRAVE OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER SEAGRAVE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Seagrave specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Disclaimer of Warranties

THE WARRANTY SET FORTH IN THE PREVIOUS PARAGRAPHS IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY SEAGRAVE. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND WARRANTIES ARISING BY OPERATION OF LAW, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE.

NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTIES ON BEHALF OF SEAGRAVE FIRE APPARATUS, LLC, OTHER THAN AS SET FORTH HEREIN. ANY MODIFICATION TO THIS WARRANTY MUST BE IN WRITING AND APPROVED AND SIGNED BY THE CEO OF SEAGRAVE FIRE APPRATUS, LLC.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

Note: Any Surety Bond, if part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Seagrave Limited Warranty for such vehicle, and not to other warranties made by Seagrave in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Seagrave) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

Seagrave Fire Apparatus, LLC

Stainless Steel Body

Fifteen Year Structural Integrity Limited Warranty

Seagrave Fire Apparatus, LLC ("Seagrave") warrants the body tubular support and mounting structures and other structural components, as identified in Seagrave's specifications of the stainless steel body ("Body") of each new custom fire and rescue vehicle, so equipped and manufactured by Seagrave, to be free of structural failures caused by defective materials or workmanship for a warranty period of fifteen (15) years after the date on which the vehicle is first delivered ("Warranty Start Date" or "WSD") to the original purchaser ("Purchaser") or 100,000 miles, whichever comes first.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the structural component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have structurally failed due to defective design or workmanship.

Seagrave's obligation under this warranty is subject to the following conditions precedent: (a) that the claimed failure shall have first appeared during the warranty period; (b) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the first date of discovery, but in any event prior to the expiration of the warranty period; (c) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid; (d) Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty; (e) in advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, written approval for the repair or replacement must be obtained from Seagrave's Manager Customer Service or the CEO; (f) repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain all of the advance approvals voids this warranty; and (g) coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

This warranty does not apply to or cover: (a) normal maintenance services or adjustments; (b) any item that has been repaired, replaced or altered by a facility not approved in advance, in writing, by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (c) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (d) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (e) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (f) time required to unload or reload the vehicle or item; (g) nonstructural breakage or cracking; (h) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component (fatigued sheet metal is NOT considered structural), as identified in Seagrave's specifications, of the Body due to defective design or workmanship; (i) transportation fees or charges to or from any facility; or (j) defects if the Body is damaged, dented, scratched, corroded or rusted from severe salt or road corrosive materials; faded or discolored by exposure to heat or severe sun conditions or environmental conditions.

This warranty is void if Seagrave determines that the Body has been neglected, misused, altered, overloaded, loaded to a state of excessive imbalance side to side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the Body has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the Body.

Purchaser's Exclusive Remedy

If the Body fails to conform to the warranty set forth in the limited warranty on this page during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Purchaser must notify Seagrave within the time period specified above and shall make the Body and all maintenance records available for inspection by Seagrave or its designated agent. At the request of Seagrave, any allegedly defective Body shall be returned to Seagrave or an authorized Seagrave representative by the Purchaser for examination and/or repair. Purchaser shall be responsible for the cost of all such transportation including loading and unloading and for loss of or damage to the vehicle during transportation. Within a reasonable time, Seagrave shall repair or replace (at Seagrave's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance, in writing, by Seagrave. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

Exclusion of Consequential and Incidental Damages

Notwithstanding anything to the contrary herein or in any agreement between Seagrave and Purchaser, IN NO EVENT SHALL SEAGRAVE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY SEAGRAVE OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER SEAGRAVE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Seagrave specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

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Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave's Basic Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

Seagrave Fire Apparatus, LLC

CAB

Fifteen Year Structural Integrity Limited Warranty

Seagrave Fire Apparatus, LLC ("Seagrave") warrants the cab tubular support and mounting structures and other structural components, as identified in Seagrave's specifications, of the cab ("Cab") of each new custom fire and rescue vehicle, so equipped and manufactured by Seagrave, to be free of structural failures caused by defective materials or workmanship for a warranty period equal to fifteen (15) years after the date on which the vehicle is first delivered ("Warranty Start Date" or "WSD") to the original purchaser ("Purchaser") or 100,000 miles, whichever occurs first.

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the structural component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have structurally failed due to defective design or workmanship. This warranty is limited to the cab tubular support and mounting structures and to the other structural components, as identified in Seagrave's specifications, of the cab.

Seagrave's obligation under this warranty is subject to the following conditions precedent: (a) that the claimed failure shall have first appeared during the warranty period; (b) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the first date of discovery, but in any event prior to the expiration of the warranty period; (c) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid; (d) Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty; (e) in advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, written approval for the repair or replacement must be obtained from Seagrave's Manager Customer Service or the CEO; (f) repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain all of the advance approvals voids this warranty; and (g) coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

This warranty does not apply to or cover: (a) normal maintenance services or adjustments; (b) any item that has been repaired, replaced or altered by a facility not approved in advance, in writing, by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (c) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (d) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (e) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (f) time required to unload or reload the vehicle or item; (g) nonstructural breakage or cracking; (h) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the Cab due to defective design or workmanship; (i) transportation fees or charges to or from any facility; or (j) defects if the Cab is damaged, dented, scratched, corroded or rusted from severe salt or road corrosive materials; faded or discolored by exposure to heat or severe sun conditions or environmental conditions.

This warranty is void if Seagrave determines that the Cab has been neglected, misused, altered, overloaded, loaded to a state of excessive imbalance side-to-side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the Cab has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the Cab.

Purchaser's Exclusive Remedy

If the Cab fails to conform to the warranty set forth in the limited warranty on this page during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Purchaser must notify Seagrave within the time period specified above and shall make the Cab and all maintenance records available for inspection by Seagrave or its designated agent. At the request of Seagrave, any allegedly defective Cab shall be returned to Seagrave or an authorized Seagrave representative by the Purchaser for examination and/or repair. Purchaser shall be responsible for the cost of all such transportation including loading and unloading and for loss of or damage to the vehicle during transportation. Within a reasonable time, Seagrave shall repair or replace (at Seagrave's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance, in writing, by Seagrave. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

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NOTE: Surety bond, if required, applies only to Seagrave's Basic Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

Seagrave Fire Apparatus, LLC
CHASSIS FRAME RAIL & CROSSMEMBERS
Structural Integrity Limited Lifetime Warranty

Seagrave Fire Apparatus, LLC ("Seagrave") warrants each new chassis frame rail and crossmember manufactured by Seagrave ("Frame Rail and Crossmember") of each new custom fire and rescue vehicle, so equipped and manufactured by Seagrave, to be free of structural failures caused by defective materials or workmanship for a warranty period equal to the vehicle's useful life (twenty (20) years or 100,000 miles) after the date on which the vehicle is first delivered ("Warranty Start Date" or "WSD") to the original purchaser ("Purchaser").

This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the structural component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have structurally failed due to defective design or workmanship.

Seagrave's obligation under this warranty is subject to the following conditions precedent: (a) that the claimed failure shall have first appeared during the warranty period; (b) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the first date of discovery, but in any event prior to the expiration of the warranty period; (c) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid; (d) Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty; (e) in advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, written approval for the repair or replacement must be obtained from Seagrave's Manager Customer Service or the CEO; (f) repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain all of the advance approvals voids this warranty; (g) coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty; and (h) the Frame Rail and Cross Member bolts must be inspected and serviced, including re-torqueing or replacement if needed, annually at the customer's expanse by an Authorized Service Representative in accordance with Seagrave's recommended procedures. Such annual inspection shall be performed within twelve months directly following the Warranty Start Date and each successive twelve months thereafter for the full term of the warranty. All documentation must be sent to Seagrave's Customer Service Department within thirty (30) days after the inspection; failure to submit such documentation will void this warranty.

This warranty does not apply to or cover: (a) normal maintenance services or adjustments; (b) any item that has been repaired, replaced or altered by a facility not approved in advance, in writing, by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (c) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (d) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (e) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (f) time required to unload or reload the vehicle or item; (g) nonstructural breakage or cracking; (h) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the Frame Rail and Crossmember due to defective design or workmanship; (i) transportation fees or charges to or from any facility; or (j) defects if the Frame Rail and Crossmember is damaged, dented, scratched, corroded or rusted from severe salt or road corrosive materials; faded or discolored by exposure to heat or severe sun conditions or environmental conditions.

This warranty is void if Seagrave determines that the Frame Rail and Crossmember has been neglected, misused, altered, overloaded, loaded to a state of excessive imbalance side-to-side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the Frame Rail and Crossmember has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the Frame Rail and Crossmember.

Purchaser's Exclusive Remedy

If the Frame Rail and Crossmember fails to conform to the warranty set forth in the limited warranty on this page during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Purchaser must notify Seagrave within the time period specified above and shall make the Frame Rail and Crossmember and all maintenance records available for inspection by Seagrave or its designated agent. At the request of Seagrave, any allegedly defective Frame Rail and Crossmember shall be returned to Seagrave or an authorized Seagrave representative by the Purchaser for examination and/or repair. Purchaser shall be responsible for the cost of all such transportation including loading and unloading and for loss of or damage to the vehicle during transportation. Within a reasonable time, Seagrave shall repair or replace (at Seagrave's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in, advance in, writing by Seagrave. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

Exclusion of Consequential and Incidental Damages

Notwithstanding anything to the contrary herein or in any agreement between Seagrave and Purchaser, IN NO EVENT SHALL SEAGRAVE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY SEAGRAVE OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER SEAGRAVE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Seagrave specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Disclaimer of Warranties

THE WARRANTY SET FORTH IN THE PREVIOUS PARAGRAPHS IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY SEAGRAVE. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND WARRANTIES ARISING BY OPERATION OF LAW, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTIES ON BEHALF OF SEAGRAVE FIRE APPARATUS, LLC, OTHER THAN AS SET FORTH HEREIN. ANY MODIFICATION TO THIS WARRANTY MUST BE IN WRITING AND APPROVED AND SIGNED BY THE CEO OF SEAGRAVE FIRE APPARATUS, LLC.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave's Basic Limited Warranty, and not to this or any other or extended warranty made by Seagrave or any of Seagrave's suppliers.

Seagrave Fire Apparatus, LLC

PAINT/CORROSION

Ten Year Limited Warranty

Subject to the limitations and exclusions set forth below, Seagrave Fire Apparatus, LLC ("Seagrave") warrants the exterior paint on each new cab and body manufactured by Seagrave for a period of ten (10) years after the date on which the vehicle is first delivered ("Warranty Start Date" or "WSD") to the original purchaser ("Purchaser") as established by Seagrave's original invoice. Seagrave warrants the Purchaser that its finished cab and body ("Cab and Body") areas will be free from corrosion, blistering, peeling, or any other adhesion defect caused by defective manufacturing methods or paint material selection for exterior surfaces of the body of the vehicle.

Seagrave's obligation under this warranty is subject to the conditions precedent: (a) Original Purchaser must notify Seagrave in writing of the claimed defect or perforation within thirty (30) days of discovery, but in any event prior to the expiration of the warranty period; (b) written approval must be obtained from Seagrave's Customer Service Manager **prior** to any repair or replacement of any materials covered within this Limited Warranty; (c) unless Seagrave directs otherwise, the claimed defective or perforated item(s) shall be returned to Seagrave, or to Seagrave's designee, promptly after the notification. Original Purchaser shall be responsible for the cost of transportation and for risk of loss or damage to the vehicle or materials during transportation; (d) Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed defect or perforation is covered by this warranty; (e) repair or replacement must be made by a facility approved in advance, in writing, by Seagrave. Failure to obtain all of the advance approvals voids this warranty. Coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty; (f) the Cab and Body exterior must be properly maintained; and (g) the Cab and Body exterior must be inspected and serviced annually at the customer's expanse by an Authorized Service Representative in accordance with Seagrave's recommended procedures. Such annual inspection shall be performed within twelve months directly following the Warranty Start Date and each successive twelve months thereafter for the full term of the warranty. All documentation must be sent to Seagrave's Customer Service Department within thirty (30) days after the inspection; failure to submit such documentation will void this warranty.
This warranty terminates upon transfer of possession or ownership of the vehicle from the original purchaser.

This Limited Warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:

Period	Portion of Cost Covered
0 – 24 Months	100%
25 - 36 Months	90%
37 - 48 Months	70%
49 – 60 Months	60%
61 - 72 Months	50%
73 – 84 Months	40%
85 – 96 Months	30%
97 – 108 Months	20%
109 – 120 Months	10%

Seagrave also warrants, subject to all of the terms and conditions of this Limited Warranty, except cost allocations, each new Cab and Body manufactured by Seagrave against exterior corrosion perforation for a warranty period of ten (10) years after the date on which the vehicle is first delivered to the original purchaser or 100,000 miles, whichever occurs first.

This limited warranty covers only repair or replacement of any part of a Seagrave vehicle in which a defect in materials or workmanship appears within the limited warranty period. This warranty is void if Seagrave determines that the warranty claim is false or misrepresented.

Examples of items not covered include, but are not limited to:

I. Major components or trade accessories such as purchased chassis, engines, signaling devices, batteries, generators, tires, rims or transmissions that have a separate warranty by the original manufacturer, or to equipment used in firefighting.
II. An unauthorized alteration or modification to the vehicle, including the body, chassis or components, after completion of the vehicle assembly by Seagrave and any problems that occur as a result of such alterations or modifications.
III. Damage caused by collision, fire, theft, freezing, vandalism, riot, explosion, acts of nature, war or objects striking the vehicle or any damage covered by owner insurance.
IV. Damage caused by misuse, neglect or improper operation of the vehicle such as driving over curbs, overloading, racing or off–road use.
V. Corrosion caused by exposed sheet metal, accidents, or normal wear and tear are not defects in material or workmanship
VI. Damage caused by failure to follow the requirements of the maintenance schedule, failure to maintain proper fluid and lubricant levels and failure to follow operating instructions.
VII. Incidental expenses such as loss of vehicle use, inconvenience, loss of time, vehicle rental, loading or travel costs, vacation pay, liability for personal or property damages, penalties, damages for lost profits or revenues, any other types of economic loss or any third party claims for damages.
VIII. Gold leaf, striping, exotic and/or custom finishes and Scotchlite emblems or decals installed by anyone other than the Seagrave factory.
IX. Damage caused from exposure to road de-icing compounds or use in an acidic environment.
X. Normal paint deterioration due to exposure
XI. Damage caused from not following cab and body washing procedures on truck and in Operation and Maintenance Manual.
XII. Defects if vehicle is damaged, dented, scratched, corroded or rusted from severe salt or road corrosive materials, or faded or discolored by exposure to heat or severe sun conditions or environmental conditions.
XIII. This warranty shall not apply to non-exterior surface areas (i.e. compartment interiors, cab and body interior, undercarriages)
XIV. This warranty shall only apply to exterior coating applied by Seagrave and specifically excludes all coating applications applied by other manufacturers including chassis and chassis compartments.
XV. This warranty shall exclude accessory vendor equipment that is painted to match finished vehicle.
XVI. This warranty shall exclude painted roll-up doors.
XVII. Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy duty pressure washing or aggressive mechanical wash system.
XVIII. Paint deterioration caused by abuse, accidents, acid rain, chemical fallout or acts of nature.
XIX. Accidents, scratches, chips, bruises, and gloss reduction or blemishes due to normal vehicle use and maintenance.

Purchaser's Exclusive Remedy

If the Cab and Body fails to conform to the warranty set forth in the limited warranty on this page during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Purchaser must notify Seagrave within the time period specified above and shall make the vehicle and all maintenance records available for inspection by Seagrave or its designated agent. At the request of Seagrave, any allegedly defective Cab and Body shall be returned to Seagrave or an authorized Seagrave representative by the Purchaser for examination and/or repair. Purchaser shall be responsible for the cost of all such transportation including loading and unloading and for loss of or damage to the vehicle during transportation. Within a reasonable time, Seagrave shall repair or replace (at Seagrave's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance, in writing, by Seagrave. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

Exclusion of Consequential and Incidental Damages

Notwithstanding anything to the contrary herein or in any agreement between Seagrave and Purchaser, IN NO EVENT SHALL SEAGRAVE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY SEAGRAVE OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER SEAGRAVE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Seagrave specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Disclaimer of Warranties

THE WARRANTY SET FORTH IN THE PREVIOUS PARAGRAPHS IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY SEAGRAVE. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND WARRANTIES ARISING BY OPERATION OF LAW, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTIES ON BEHALF OF SEAGRAVE FIRE APPARATUS, LLC, OTHER THAN AS SET FORTH HEREIN. ANY MODIFICATION TO THIS WARRANTY MUST BE IN WRITING AND APPROVED AND SIGNED BY THE CEO OF SEAGRAVE FIRE APPRATUS, LLC.

Seagrave reserves the right to make changes to Seagrave's products without incurring any obligation to modify or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to Seagrave Basic Limited Warranty, and not to this or any other warranty made by Seagrave or any of Seagrave's suppliers.

Seagrave Fire Apparatus, LLC

STAINLESS STEEL PUMP PLUMBING

TEN YEAR LIMITED WARRANTY

Seagrave Fire Apparatus, LLC ("Seagrave") warrants the stainless steel pump plumbing of each new custom fire and rescue vehicle, so equipped and manufactured by Seagrave, to be free of structural failures caused by defective materials or workmanship for a warranty period of ten (10) years after the date on which the vehicle is first delivered ("Warranty Start Date" or "WSD") to the original purchaser ("Purchaser").
This warranty is limited to the schedule 10 stainless steel piping and attached fittings, as identified in Seagrave's specifications, of the pump plumbing ("Stainless Steel Plumbing").

This warranty terminates upon transfer of possession or ownership of the vehicle or Stainless Steel Plumbing from the original purchaser.

Seagrave's obligation under this warranty is limited to repairing or replacing, as Seagrave may elect, without charge to the original purchaser, the pump plumbing component or components which Seagrave, after examination, finds, to Seagrave's satisfaction, to have structurally failed due to defective design or workmanship.

Seagrave's obligation under this warranty is subject to the following conditions precedent: (a) that the claimed failure shall have first appeared during the warranty period; (b) that the original purchaser shall have notified Seagrave in writing of the claimed failure within thirty (30) days after the first date of discovery, but in any event prior to the expiration of the warranty period; (c) that, unless Seagrave directs otherwise, the claimed failed item or items shall have been returned to Seagrave, or to Seagrave's designee, promptly after the notification, with transportation charges prepaid; (d) Seagrave reserves the right to thoroughly examine the vehicle or parts thereof, prior to conducting or approving any repair or replacement, to determine whether the claimed failure is covered by this warranty; (e) in advance of the original purchaser effecting repair or replacement of a structural component or components found by Seagrave to have structurally failed due to defective design or workmanship, written approval for the repair or replacement must be obtained from Seagrave's Manager Customer Service or the CEO; (f) repair or replacement must be made by a facility approved in advance by Seagrave. Failure to obtain all of the advance approvals voids this warranty; and (g) coverage under this warranty of labor for repair or replacement is limited to the time or amounts reasonably necessary, as determined by Seagrave, to make the repair or replacement. Labor time or amounts deemed excessive by Seagrave are not covered under this warranty.

This warranty does not apply to or cover: (a) normal maintenance services or adjustments; (b) any item that has been repaired, replaced or altered by a facility not approved in advance, in writing, by Seagrave's Customer Service Department, or in a manner which, in Seagrave's judgment, may adversely affect the operation or longevity of the vehicle or item; (c) integral parts, components, aftermarket or trade accessories not manufactured by Seagrave; (d) special, incidental or consequential damages including, but not limited to, loss of time, inconvenience, loss of use, or lost profits; (e) any malfunction resulting from misuse, negligence, alteration, accident or lack of operational knowledge or normal maintenance or adjustments; (f) time required to unload or reload the vehicle or item; (g) nonstructural breakage or cracking; (h) material bending, buckling or other metal deformation unless caused by a structural failure of a structural component, as identified in Seagrave's specifications, of the Stainless Steel Plumbing due to defective design or workmanship; (i) transportation fees or charges to or from any facility; or (j) defects if the Stainless Steel Plumbing is damaged, dented, scratched, corroded or rusted from severe salt or road corrosive materials; faded or discolored by exposure to heat or severe sun conditions or environmental conditions.

This warranty is void if Seagrave determines that the Stainless Steel Plumbing has been neglected, misused, altered, overloaded, loaded to a state of excessive imbalance side-to-side, or damaged. This warranty is also void if Seagrave determines that the warranty claim is false or misrepresented, that the Stainless Steel Plumbing has been damaged in an accident or by an act of God, or that the structural failure is attributable to use or operation of the vehicle or item in a manner or for a purpose other than that for which Seagrave intended or designed the Stainless Steel Plumbing.

Purchaser's Exclusive Remedy

If the Stainless Steel Plumbing fails to conform to the warranty set forth in the limited warranty on this page during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Purchaser must notify Seagrave within the time period specified above and shall make the Stainless Steel Plumbing and all maintenance records available for inspection by Seagrave or its designated agent. At the request of Seagrave, any allegedly defective Stainless Steel Plumbing shall be returned to Seagrave or an authorized Seagrave representative by the Purchaser for examination and/or repair. Purchaser shall be responsible for the cost of all such transportation including loading and unloading and for loss of or damage to the vehicle during transportation. Within a reasonable time, Seagrave shall repair or replace (at Seagrave's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance, in writing, by Seagrave. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

Exclusion of Consequential and Incidental Damages

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