

OCEAN CITY FIRE DEPARTMENT ENGINE SPECIFICATIONS

OCEAN CITY FIRE DEPARTMENT

ENGINE SPECIFICATIONS

For your consideration by the undersigned committee members:

Fire Chief Chris Larmore _____

Deputy Chief David Cropper _____
Committee Chairman

Captain Steve Price _____

Lieutenant Chris Shaffer _____

Lieutenant Douglas Scott _____

Past Chief John Guntow _____

Past Chief Engineer Skip Bunting _____

Director Steve Cropper _____

Firefighter Angelo Floria _____

Firefighter Mike Michael Maykrantz _____

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I. GENERAL REQUIREMENTS

A. SUBMISSION OF REQUEST FOR PROPOSAL

This RFP shall be for one (1) complete unit, with prices for up to but no more than four (4) identical units. The proposal must show the cost for one (1) with a cost breakdown for 2,3, & 4 additional units.

Proposers are required to return these specifications as part of their written request for proposal. Proposals shall be submitted only in the format hereinafter set forth and on the forms attached. Any proposal not in accordance with these instructions, in the form prescribed, containing proposals not asked for, or not completing all statements on the proposal forms, shall be cause for rejection. Proposals that contain any omissions, erasures, alterations, additions, items not called for in the proposal documents, or those that contain irregularities of any kind, shall not be considered. All signatures shall be in ink, and no proposal shall be considered unless signed.

Proposals shall be submitted in a sealed envelope endorsed on the outside with the statement, "Proposal on New Apparatus" and bearing the date and time of the proposal opening. Proposals received after the designated time shall not be accepted or opened and shall be returned to the sender.

The proposal price shall be good for a period of sixty (60) days from the date of the proposal opening. Exception to this item may be taken due to engine change requirements.

B. RESPONSIBILITY OF THE PROPOSER

Any proposer who does not understand any portion of these specifications and or the requirements, or who wishes to present a question on same, shall do so in writing.

Verbal answers shall not be binding.

The proposal *shall* be the manufactures best and final proposal.

C. PROPOSER'S AFFIDAVIT

Failure to sign and return this affidavit shall be grounds for immediate rejection of the proposal.

I, _____ as the authorized agent _____ do hereby attest and affirm that the following information is true and that the proposal submitted by our firm complies with the general instructions, requirements, and specifications contained in this proposal submission, except where indicated below.

Yes _____ No _____ The apparatus offered is manufactured by a single source apparatus (cab, chassis, body) builder in North America.

Yes _____ No _____ The apparatus proposed is not a prototype.

Yes _____ No _____ The performance tests shall be performed in compliance with the specifications and all applicable standards.

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Yes _____ No _____ All pages of the General Instructions Requirements and specifications have been received and reviewed.

Yes _____ No _____ All questionnaires and blanks have been accurately filled in.

Yes _____ No _____ A properly executed Proposal Bond/Cashiers check is enclosed.

Yes _____ No _____ Proposer complies with proposal specifications without exception.

Yes _____ No _____ Proposer complies with design criteria.

Yes _____ No _____ Proposer has included Apparatus Drawings per specifications.

Yes _____ No _____ All specified warranties included.

Yes _____ No _____ All proposed warranties are in compliance with specifications.

Yes _____ No _____ The proposed apparatus and equipment are new and unused.

Yes _____ No _____ A complete copy of the proposer's detailed proposal is included.

Yes _____ No _____ A separate list of exceptions is attached.

Yes _____ No _____ Prices for multiple units.

(1) One Unit: _____

(2) Two Units: _____

(3) Three Units: _____

(4) Four Units: _____

What is the earliest delivery date: _____.

Location of closest major and satellite service center: _____.

State the dimensions of the proposed apparatus:

a. Overall height: _____

b. Overall length: _____

c. Overall width: _____

Delivery of the apparatus shall take place within (365) calendar days after the execution and acceptance of a contract and/or approved purchase order.

Authorized Agent Information:

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Name (printed): _____
Address: _____

Contact person: _____
Phone: _____
Fax: _____
Agent Signature: _____
Date: _____
Manufacturer Information:
Name: _____
Address: _____

Phone: _____
Fax: _____

D. INTENT OF SPECIFICATIONS

It is the intent of these specifications to describe, in detail, the minimum requirements for furnishing a complete apparatus manufactured and equipped as hereinafter specified. The intent is also to establish the criteria with the least amount of room for exceptions.

These specifications cover only the general requirements as to the type of construction and certain details such as finish, equipment and appliances with which the apparatus and the successful proposer must conform. Minor details of construction and material where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and the construction of all features.

The apparatus proposed, in addition to complying with these specifications, shall also comply with the appropriate requirements of the National Fire Protection Association (NFPA), Department of Transportation, the Federal Motor Vehicle Safety Standards and the Society of Automotive Engineers in effect on the date of the proposal unless stated otherwise in these specifications.

Proposals shall only be considered from companies who are, or represent, an established reputable company in the field of fire apparatus construction which has been in business for a minimum of twenty (20) years.

Each proposer shall furnish satisfactory evidence of their, or represented company's, ability to construct the apparatus specified, and shall state the location of the factory where the apparatus will be assembled.

Each proposal shall be accompanied by a set of contractors' specifications consisting of a detailed description of the apparatus and equipment proposed. These specifications shall indicate make and model of all component parts and equipment.

The apparatus and major components shall be built in North America or the proposal shall be rejected immediately with no further explanation given or required.

E. SINGLE SOURCE MANUFACTURER

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The cab, chassis, and body shall be manufactured by one builder to ensure compatibility serviceability, and to eliminate divided responsibility. Statements indicating that the proposer's service center honors all warranties or that a chassis is manufactured to the proposer specification do not comply with the intent of this requirement.

There shall be no exception to the single source manufacturer requirement.

F. DESIGN CRITERIA

The apparatus shall be of the latest design and type while using the most current industry construction techniques. The complete apparatus, assemblies, component parts, etc., shall be designed and constructed with due consideration to the nature and distribution of the load to be sustained and the general character of the service to which the apparatus is to be subjected. The proposer shall make accurate statements as to apparatus weight and dimensions.

All parts of the apparatus shall be designed with a factor of safety that is equal to or greater than that which is considered standard and acceptable for this class of equipment in the firefighting and/or emergency service. The apparatus shall be fabricated using jigs and fixtures, and be so designed and constructed that the various parts are readily accessible for lubrication, inspection, adjustment, and repair. The successful proposer must provide a pump panel drawing separate from apparatus drawing for approval by committee designee.

G. TECHNICAL EVALUATION

Technical evaluation shall be based upon the minimum requirements set forth in the specifications during the expected life of the apparatus being proposal. Estimates concerning the ability of the fire apparatus to perform accordingly shall be made by the Purchaser.

1. Quality of workmanship, materials, and components used in construction of fire apparatus.
2. Functional design of fire apparatus.
3. Warranties.
4. Any other factors the Purchaser deems to be relevant.

H. PERFORMANCE TEST AND REQUIREMENTS

VEHICLE STABILITY:

The height of the fully loaded vehicle's center of gravity, front to rear weight distribution of the fully loaded vehicle, and minimum front axle loads under all loading conditions, shall be within the limits set by the proposer's engineering department. The delivered apparatus shall have a certified GVRW weight sticker applied to the vehicle upon delivery to assure the apparatus meets all requirements pertaining to the weight carrying capacity of the vehicle.

APPARATUS PERFORMANCE:

The apparatus when fully equipped and loaded as defined by NFPA standards, shall be capable of the following performance while on dry, paved roads that are in good condition. The apparatus shall be able to attain a speed of 35 mph within 25 seconds from a standing start on a level road. The apparatus shall be able to attain a minimum top

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speed of 65 mph on a level road. The apparatus shall be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.

BRAKING:

The service brakes shall meet NFPA requirements for braking. Shall be Disc Brakes.

FIRE PUMP TESTING:

The fire pump shall be tested and approved by an independent third party in accordance with NFPA standards.

I. FAMILIARARITY WITH LAWS

The proposer is presumed to be familiar with all Federal, State, and Local laws, ordinances, code rules and regulations that may in any way affect this contract. Ignorance on the part of the proposer shall in no way relieve the proposer from responsibility to comply with these specifications.

J. TAXES

The proposal price shall not include any local, State, or Federal taxes. The Proposer shall not be liable for any State or Federally mandated tax or program after the sale of this apparatus.

K. LIABILITY

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

L. INSURANCE

The proposer shall furnish with their proposal, Certificates of Insurance for the following:

- General Liability
- Automotive Liability
- Excess Liability
- Workers Comp/Employers

The manufacturer of the apparatus proposal shall provide this Agency with a Certificate of Insurance proving that they carry a minimum of Ten million dollars (\$10,000,000.00) in product liability insurance. This insurance shall have been issued by a company that is rated at least "A" as reported in the current edition of Best's Key Rating Guide, published by the Alfred M. Best Company Inc. Proposals not meeting this requirement will not be accepted.

M. WARRANTY

The Proposer shall provide warranty information with his proposal. The Proposer shall state the warranty term offered for the major components of the apparatus. To prevent the problem of "Divided Responsibilities", the

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successful Proposer shall coordinate all warranty claims. Any proposal received with a dealer's or agent's warranty shall cause immediate rejection of the proposal.

Each proposer shall provide with his proposal complete warranty information that must become an integral component of the sales contract.

This warranty shall not apply to:

1. Normal maintenance services or adjustments.
2. Any vehicle which shall have been repaired or altered outside of the manufacturer's factory in any way so as, in the manufacturer's judgment, to affect its stability, nor which has been subject to misuse, negligence, or accident, nor to any vehicle made by the manufacturer which shall have been operated at a speed exceeding the manufacturer's rated speed, or leaded beyond the manufacturer's rated capability.
3. Associated equipment furnished with the vehicle such as signaling devices, generators, batteries, or other trade accessories, insomuch as they are warranted separately by their respective manufacturers.

This warranty shall be in lieu of all other warranties, expressed or implied, all other representations to the original Purchaser, and all other obligations or liabilities, including liability for incidental or consequential damages on the part of the Proposer. The Purchasers shall neither assumed any other warranty or liability on the Proposer's behalf unless made or assumed by the Proposer.

N. WARRANTY CONTACT FORM

The dealer shall complete this section, showing whom to contact to report problems with the apparatus.

First Contact: _____

Title: _____

Phone Number Until (pm): _____

Second Contact: _____

Title: _____

Phone Number Until (pm): _____

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O. APPROVED PAINT FACILITIES

All painting done of the apparatus shall be done in facilities that are registered with the federal government signifying that they comply with all applicable EPA guidelines regarding toxic waste control. Failure of the company to produce proper documentation showing that they comply shall be cause for rejection.

P. PROPOSAL DRAWINGS

Drawings of the proposed apparatus are required with the proposal. These drawings shall be an important tool in evaluating the proposals. They shall also insure that the purchaser understands the apparatus being proposed by the Proposer. These drawings shall depict the driver's side, top, front, and rear views.

Drawings supplied shall be specifically for the purchaser. Any drawings that are similar to or general in design are not acceptable and shall be considered non-compliant.

Proposals submitted without proposal drawings shall not be accepted.

Q. EXCEPTIONS TO SPECIFICATIONS

The specifications shall be strictly adhered to. Exceptions may be allowed only in the sole judgment of the purchasing authority if they are equal to or superior to items specified. All exceptions and deviations shall be listed and fully explained on a separate page entitled "Exceptions to Specifications" and shall reference the page number of the specification. Proposers shall place a check in the appropriate column on the right hand side of the page to signify compliance or noncompliance with each item of these specifications.

Proposals taking total exception to these specifications shall not be considered.

All paragraphs that are checked as a "No," or "Non-compliant" shall be explained on the exception page. The term "Exceeds" or other like terms shall not be acceptable as an explanation of non-compliance.

If no exceptions are taken, and compliance is indicated, then it should be understood that the apparatus shall be built exactly to the required specifications as written.

The apparatus shall be inspected upon delivery for compliance with the specifications. The proposer understands that failure to meet the specifications as published by the Purchaser, which shall be part of the contract, shall be grounds to refuse delivery, and further understands that the "Non-Performance" assessment as stated in these specifications may be fully enforced without exception.

R. "OR APPROVED EQUAL" CLAUSE

The use in these specifications of apparatus, equipment or material by brand name or by such specified description of same as is hereby made, is intended to convey to the proposer's understanding, the degree of excellence required. Any item, component, or material which conforms to the standards and excellence as established by these specifications, and is of equal merit, strength, durability and appearance and can perform the desired function, is deemed eligible for offer as a substitute.

The qualifications of the offering shall be judged as to their conformance with these specifications. Any equipment offered other than herein specified shall be subject to a competitive demonstration and evaluation by the Purchaser. Such demonstration shall be provided on request within ten (10) working days after the receipt of the proposals.

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S. ADDENDUMS AND INTERPRETATIONS

No interpretation of the meaning of these specifications or other proposal documents shall be made to any proposer verbally. All requests for interpretation of the proposal package shall be made in writing and addressed to the Purchaser, and shall be received no later than ten (10) days prior to the proposal opening date to be given consideration.

Any and all such interpretations, and any supplemental instructions, shall be issued in the form of a written addendum to the specifications which, if issued shall be mailed by certified mail to all prospective proposers no later than five (5) days prior to the date fixed for the opening of proposals. Failure to include any such addendums or interpretations shall not relieve any proposer from obligation under their proposal as submitted. Any questions to the specifications may be addressed to the designated representative of the Purchaser.

T. PROPOSAL AWARD

All proposers shall be aware that it is the intention of the Purchaser to award the proposal based on compliance to specifications and the proposer's ability to support the apparatus over its effective service life, not just initial acquisition cost alone. Only proposals from companies that can supply all the items and assurances specified shall be considered. Submittals will be evaluated by an evaluation panel. Award shall be made to the most responsive, responsible offeror whose proposal is determined to be the most advantageous to the purchaser.

PRICE: All Prices quoted shall be best and final for the specified contract period.

FOB POINT: Prices quoted shall be FOB to: Ocean City, MD 21842

TERM OF AGREEMENT: The term of agreement for this RFP shall be for a one (1) year initial period.

OPTION TO EXTEND: The Purchaser may, at its option and with the approval of the contractor, extend the term of this agreement for future purchase of identical units.

U. FINANCIAL QUALIFICATION OF PROPOSERS

Proposals shall only be considered from apparatus manufacturers who can demonstrate their financial ability to manufacture and support the apparatus herein specified. If the apparatus manufacturer is a "publicly" held corporation the proposer shall provide this Agency the stock market symbol and on what stock exchange the company's stock is traded. Proposals not meeting this requirement will not be accepted.

V. LOCAL REPRESENTATION

To assure the purchaser that prompt, professional and accurate representation is made on behalf of the manufacturer, a factory authorized dealership within a reasonable distance of the purchaser shall be licensed by this state to sell vehicles. This dealership shall be competent and knowledgeable with respect to the sales and service of the emergency apparatus that the manufacturer produces.

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The dealership shall have available twenty-four (24) hours a day factory, trained and authorized service technicians who are completely trained in the servicing and maintenance of the apparatus offered. The local dealership shall attend all contract review meetings, pre-construction meetings, inspection trips, and completed unit delivery to the Purchaser.

W. SERVICE ABILITY REQUIREMENTS

The proposer places a very high priority on service. All proposers shall therefore provide complete details of their ability to service the apparatus proposed, including but no limited to the following:

1. Service Facility: Size, location(s), bays, paint, and body capabilities.
2. Service Vehicles: Number and limitations.
3. Certified Service Employees: Number of NAEVT Certified technicians.
4. Service: Hours of Operation.
5. Parts volume at location(s) and emergency contingency offerings.

The service ability section of these specifications will be a major factor in determining the successful proposer. Limited manpower does not allow for the apparatus to be taken to various places for repairs. It is the desire of the Purchaser that repairs to the apparatus which can be reasonably accomplished in the fire station shall be done so to reduce the out of service time of the apparatus.

The proposer's authorized service center shall have a minimum of one fully equipped service vehicle, which shall carry spare parts and repair equipment needed to work on the apparatus proposed.

The local service center shall be available for an inspection by designated representatives of the Purchaser prior to proposal award.

X. PROPOSAL BOND REQUIREMENTS

All proposers are required to furnish a proposal surety in the amount of 10% with their proposal. The surety will be in the form of a bond or cashier's check.

With respect to the qualifications of proposed sureties, the proposer's bonding company shall meet the following requirements:

1. An acceptable surety as outlined by the Department of the Treasury on their most recent Federal Register.
2. A.M. Best rating of "A" or better.
3. Licensed as a surety in the state where the sale is made, and the state of the manufacturer.

Y. PERFORMANCE BOND

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All proposers should take note that if their proposal is accepted and awarded, they shall furnish a 100% performance bond within fifteen (15) working days after the order is received. Failure to execute and deliver the performance bond in the required time may void the proposal award and the next compliant proposer shall receive the award.

With respect to the qualifications of proposed sureties, the proposer's bonding company shall meet the following requirements:

1. An acceptable surety as outlined by the Department of the Treasury on their most recent Federal Register.
2. A.M. Best rating of "A" or better.
3. Licensed as a surety in the state where the sale is made, and the state of the manufacturer.

Z. NON-COLLUSIVE PROPOSALDING CERTIFICATION

By submission of this proposal, each proposer and each person signing on behalf of any proposer, certifies, and in the case of a joint proposal, each party thereof certifies as to its own organization, under penalty of perjury, that to the best of their knowledge and belief:

1. The prices in this proposal have been arrived at independently without collusion, consultation, communication, or agreement, for purposes of restricting competition, as to any matter relating to such prices with any other proposer or any competitor.
2. Unless otherwise required by law, the prices that have been quoted in this proposal have not been knowingly disclosed by the proposer and shall not knowingly be disclosed by the proposer prior to opening, directly or indirectly, to any other proposer or to any competitor.
3. No attempt has been made by the proposer to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.
4. That all requirements of the law including amendatory provisions as to non-collusive proposing have been complied with.

AA. PRE-CONSTRUCTION CONFERENCE

A meeting shall be held within thirty (30) days after the contract has been executed that all specifications details, drawings questions and engineering work can be reviewed and approved by the Purchaser. This meeting shall not in any way delay the construction of the apparatus.

All expenses for transportation, meals and lodging for a total of four representatives of the Purchaser shall be included in the proposal price. Airline transportation shall be provided if the distance to the pre-construction meeting site exceeds 300 miles.

The meeting shall be held prior to the commencement of any work being done on the apparatus. The responsible persons shall be in attendance at the conference to authorize decisions on the behalf of the Purchaser. Signed approvals by authorized personnel from the Purchaser shall be given to the manufacturer within ten (10) working

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days and prior to any work being started. It is understood that delays in obtaining approval signatures may delay construction.

There shall be no exception to the pre-construction meeting requirements.

BB. INSPECTION TRIPS

The proposal price shall include two (2) inspection trips for four (4) designated representatives of the Purchaser to the factory where the apparatus is being constructed. The purpose of the trips is for monitoring construction progress and inspecting the apparatus for compliance to contract specifications.

The Purchaser requires that all expenses for transportation, meals, and lodging be paid for by the proposer and shall be so stated in their proposal. Airline transportation shall be provided if the distance to the manufacturer's facility exceeds 300 miles one way. The Purchaser also requires that the local dealer's sales representative accompany the members to the factory, substitutions shall not be allowed.

There shall be no exception to the inspection trip requirements.

CC. PAYMENT TERMS

The Purchaser agrees to purchase and pay in full for the apparatus and miscellaneous equipment upon acceptance and delivery to Ocean City by an appointed designee and pursuant to the following terms and conditions:

1. All prices shall be less any taxes.
2. Upon completion of delivery and training by the delivery technician.
3. An invoice shall be presented ten (10) working days prior to delivery of the apparatus to provide the Purchaser time to prepare payment.
4. The apparatus, without exception, shall not be placed "In Service" prior to full payment of the apparatus and miscellaneous equipment.

Note: The Proposer shall list any discounts that the Purchaser may realize for payment(s) other than net upon delivery. The Proposer may offer its own corporate funded finance program for the Purchaser's consideration. Third party plans shall not be acceptable.

DD. DELIVERY AND TRAINING

The Purchaser shall review the entire apparatus for compliance to the specifications at the manufacturer's factory or local dealership.

Upon successful completion of the review process, the Proposer shall transport the apparatus under its own power to the manufacturer's authorize service center nearest the Purchaser's location for final delivery preparation.

The local service center shall provide a qualified delivery technician to deliver the completed apparatus and instruct personnel in the proper operation and maintenance of the apparatus. The training shall take place at the Purchaser's designated location. A minimum of two (2) days training shall be provided.

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EE. PRE-DELIVERY CHECKLIST

The following shall be completed prior to delivery of the Purchaser.

1. Clean and detail: Eliminate air and water leaks, remove all metal shavings, tighten and secure any loose hardware, correct all paint scratches or paint chips.
2. Check all operations: Test acceleration and braking to NFPA requirements; check and record turning radius and delivered weight less personnel; eliminate any driveline vibration through all the speeds; check HVAC system.
3. If equipped, check fire pump and plumbing operation to NFPA requirements; pressure relief control and operation; control and operation of all levers, gauges, and switches; eliminate all plumbing leaks; check priming system.
4. Electrical: Check of all circuits, switches, warning lamps and buzzers; engine gauges in cab and elsewhere on the apparatus.

The Purchaser shall be given notice that the apparatus is ready for inspection prior to delivery. It shall be the Purchaser's option to inspect the apparatus at the Proposer's local service facility prior to delivery.

II. INFORMATION/SPECIFICATIONS REQUIRED AT DELIVERY

A. REQUIRED MANUALS

Two (2) printed and electronic formatted copies of complete operation and maintenance manuals covering the complete apparatus, including but not limited to, the chassis manual, lubrication charts, and fire equipment service information as supplied by brand name component suppliers.

Engine manufacturer's current brake horsepower curve showing the maximum no-load governed engine RPM.

Complete "Manufacturer's Record of Apparatus Construction Details Form," including certified completed vehicle actual weights.

B. WIRING DIAGRAMS

A wiring diagram showing the manufacturer's complete electrical system, circuit breaker panel layouts, and individual schematics for each separate circuit, shall be submitted at the time of delivery. The diagrams shall include the circuit breaker panel layouts, primary electrical system, and individual schematics for each separate circuit.

C. USER'S LIST

The Proposer shall provide the name, address, contact person, and telephone number of at least fifteen (15) similar units that have been manufactured and delivered to customers within the United States with the request for proposal.

D. CUSTOM FIRE CHASSIS

A custom cab and chassis shall be provided, designed, and engineered specifically for fire service application.
NO EXCEPTIONS PERMITTED.

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E. CUSTOM CAB AND CHASSIS SPECIFICATIONS

The chassis shall be designed engineered and manufactured by a professional truck builder with experience in producing and servicing Class 3 through Class 8 truck chassis. The manufacturer shall provide service and parts availability twenty-four (24) hours per day; seven (7) days per week via a franchised dealer employing certified truck and apparatus component service technicians.

The manufacturer shall provide a Customer Assistance Center manned twenty-four (24) hours, each day of the year by knowledgeable technicians who can provide service assistance by telephone and/or facsimile as well as locate the nearest available technician to provide specific apparatus component repairs whenever necessary.

The cab shall be specifically designed and engineered for the emergency vehicle market while the chassis shall be assembled in an ISO 9001 certified facility to insure the highest level of consistent quality components and assembly procedures, are utilized in support of long service life with minimum maintenance.

F. CHASSIS WHEELBASE AND FRAME

The chassis wheelbase shall be one hundred eighty six (186) or **less** inches.

The chassis frame shall be built to the manufacturers specifications.

G. FRAME FASTENERS

The chassis frame shall be assembled with huck-spin round collar fasteners. The fasteners shall be installed with constant uniform torque and shall not loosen from vibration or re-torquing.

H. ENGINE

The engine shall be an electronically controlled, turbocharged, six (6) cylinders (four-cycle), 450 horsepower Cummins ISM. A 5-year/100,000 miles warranty includes internal component of the Cummins Engine. An authorized Cummins distributor or authorized sales and service facility must conduct repairs. Claims are filed directly with Cummins by repair facility.

I. STARTER

The engine starter shall be a Delco Remy 12 volt 42MT with over crank protection (OCP) and thermal protection, controlled by a dash mounted three (3) position rocker switch.

J. AIR COMPRESSOR

The engine driven air compressor shall be a piston type compressor rated at 15.9 cfm air flow. The air compressor discharge line shall be Teflon hose. and it shall be the largest CFM available.

K. ENGINE COMPARTMENT LIGHTS

Two (2) engine work lights shall be installed in the engine enclosure.

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L. AIR CLEANER

The engine air cleaner shall be the size recommended by the engine manufacturer. The air cleaner element shall be manufactured from a fire retardant media and shall include an ember separator to resist flaming embers and shall be easily replaced by tilting the cab. The air cleaner shall be frame rail mounted on the right hand side of the engine. The air intake shall be mounted as high as possible so as not to come near standing water.

The air cleaner intake shall be located on the right side above the front wheels. The air intake bezel shall be chrome ABS and shall be protected by a stainless steel wire mesh screen. It shall have a sealed system designed to prevent water from entering the intake pipe or air cleaner. The air cleaner shall include a moisture evacuator to allow discharge of condensation from the intake system. The air intake shall be as high on the apparatus as possible. Nothing below 24 inches off the ground shall be accepted.

M. AIR INLET/GAUGE

A dial type airflow gauge shall be installed in the dash and shall indicate the percentage of air flow restriction through the engine air inlet filter.

N. COOLING SYSTEM COMPONENTS

The chassis shall be equipped with a high capacity down flow radiator. The radiator core shall be made of copper, with header plates made of brass. The radiator top and bottom tanks shall be non-corrosive, high temperature composite that are swaged to the core.

The cooling system shall include a translucent surge and de aeration tank. This tank shall have a sensor to warn the driver of a low coolant level via a red warning light on the dash.

The entire cooling system shall be capable of maintaining engine manufacturers recommended engine operating temperature during all load conditions required by the engine manufacturer. The radiator core shall be compatible with all commercial antifreeze solutions.

O. COOLING FAN

The nylon radiator cooling fan shall be controlled with a spring-on/air-disengage fan clutch. An automatic fan control shall be provided. The fan shall engage when the air conditioning system is on and for pumper vocations, when fire pump shift occurs. As head pressure builds up in the A/C compressor the fan will cycle on and off.

P. COOLANT HOSES

The chassis shall be equipped with silicone or equivalent coolant hoses. The hose wall construction shall reduce water permeation, decreasing radiator topping and coolant concentration imbalances. These hoses will provide a high durometer clamping surface to prevent cold seepage. Constant tension hose clamps shall be provided for all coolant hoses.

Q. HEATER HOSE

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The chassis shall be equipped with silicone or equivalent plumbing to provide flow of engine coolant fluid to the front and rear heater cores. Formed hard line plumbing shall be used from the front of the cab back to the rear cab heaters. The chassis shall be equipped with ball type shut-off valves on the heater hoses to shut off the flow of coolant fluid to the front and rear heater cores. Lines shall be routed to prevent chafing or damage by other components of the apparatus.

R. COOLANT

Engine coolant shall be heavy-duty pre-mixed ethylene glycol antifreeze. The engine coolant shall be treated with supplementary coolant additives (SCA's) as required by engine manufacturers. Engine coolant shall provide anti-freeze protection to -34 degrees Fahrenheit.

S. ENGINE PROTECTION ALARMS

The engine shall be equipped with an alarm system for low oil pressure, high coolant temperature and low coolant level. The system shall warn the driver or pump operator of a potentially damaging engine operating condition. This warning system shall not shut down the engine or reduce power under any conditions.

T. ENGINE START/STOP CONTROL

The vehicle shall be equipped with a keyless ignition, three (3) position rocker switch, "Off/Run/Start" that shall be easily accessible to the driver.

U. TRANSMISSION PROGRAMMING

The transmission shall be equipped with Allison 4th Generation or later. Controls and shall be programmed for five (5) speed Fire & Emergency Vocational Package (120) split shaft pumper application with an overdrive lockout until overridden by mode button.

V. TRANSMISSION SHIFT SELECTOR

An Allison "Touch Pad" electronic shift selector shall be located on the forward left side of the engine enclosure in close proximity to the power on/off/start switch, road to pump switch, and the parking brake control.

W. TRANSMISSION OIL COOLER

A water to oil transmission cooler shall be provided.

X. ENGINE BRAKE

The engine shall be equipped with a Jacobs compression brake. The "On/Off" switch and the "Low/Medium/High" switch shall be installed on the instrument panel. The engine brake shall interface with the Wabco ABS brake controller to prevent engine brake operation during adverse braking conditions. A pump shift interlock circuit shall be provided to prevent the engine brake from activating during pumping operation, if

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applicable.

Y. FUEL SYSTEM COMPONENTS

The chassis shall be equipped with a 65 gallon fuel tank

Z. FUEL FILL

The fuel tank shall be equipped with a filler neck assembly on the left hand side of the tank. The fuel fill cap shall have a lanyard.

AA. FUEL LINES

The fuel lines shall be installed as per the manufacturer's specifications.

BB. FUEL SENDERS

Dual electronic fuel senders shall be provided and installed. The senders will operate two separate fuel gauges; one installed in the dash instrument cluster, and the other at the pump operator's panel.

CC. FUEL/WATER SEPARATOR

A Racor (490RP-12-30) 200 watt thermostatically controlled fuel/water separator shall be installed on the chassis frame rail. It shall have an electrically heated sight bowl, water sensing light, manual primer pump and spin on filter element. The filter shall be accessible and easily serviced, or replaced.

DD. EXHAUST SYSTEM

The engine exhaust system shall be a horizontal design with an aluminized muffler with plymovent exhaust removal ready, mounted under the right side frame rail. A horizontal tail pipe shall be provided extending the exhaust outlet to the forward side of the rear wheels, exiting the right side. All exhaust piping shall be protected against damage from vibration, torque and frame flexing.

EE. FRONT AXLE COMPONENTS

The front axle shall have a maximum beam and spindle capacity of 21,500 pounds. It shall be provided with oil lubricated wheel bearings seals and a clear oil level viewing window.

FF. POWER STEERING PUMP

Power steering pump shall be required.

GG. PUMP RESORVOIR

The steering pump reservoir shall be installed as per the manufacturer's specifications.

HH. STEERING GEAR

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The steering gear shall be a Ross model TAS-85 with ram assist and rated at 21,500 pound capacity maximum. Steering geometry shall be capable of 45 degree cramp angle, minimum, **in both directions** limited only by specified tires and wheels. The power steering shall include Vickers compliant V20NF hydraulic pump with integral pressure and flow control.

II. FRONT SUSPENSION WITH SHOCK ABSORBERS

The front suspension shall be a taper leaf design with a capacity of 21,500 pounds. Front spring bushings shall be graphite impregnated bronze spring pin with grease seals. Heavy duty double acting shock absorbers shall be provided.

JJ. FRONT BRAKE COMPONENTS

The front brakes shall be air disc brakes. The brake assembly shall include the calipers, air ventilated discs, and internal force multipliers. No slack adjusters or parking brake chambers are required with this brake assembly.

KK. FRONT TIRES, WHEELS, AND HUBS

The front tires shall be Michelin severe service radial tires with all position tread. The tires shall be 385/65R22.5 18 ply and shall have a GAWR rating that meets or exceeds 20,000 pounds.

Front wheels shall be Alcoa 82364X 10-bolt, hub piloted aluminum disc, 22.5" x 12.25" with a maximum capacity of 22,000 pounds. Each front wheel outer surface shall be polished.

LL. HUB AND LUG NUT COVERS

Polished 304L stainless steel axle hub and lug nut covers shall be installed on the front axle. The front axle covers shall include openings to view axle seal oil level.

MM. REAR AXLE COMPONENTS

The rear axle shall be a fire and emergency rating of 27,000 pounds. The axle shall include single reduction hypoid gearing and oil lubricated wheel bearings.

A gear ratio shall be selected for the specified drive train components to provide a top road speed of sixty five (65) miles per hour (+/- 2 MPH).

NN. REAR SUSPENSION

The rear suspension shall be two spring flat leaf type with helper springs and radius rods. The suspension shall have a capacity of 27,000 pounds. Rear spring bushings shall be graphite impregnated bronze bar pin end connections with grease seals.

OO. AXLE SEALS

The rear axle shall be equipped with appropriate oil seals based on the rear axle manufacturer and axle series.

PP. REAR BRAKE COMPONENTS

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The rear brakes shall be air disc brakes. The brake assembly shall include the calipers, air ventilated discs, and internal force multipliers. No slack adjusters or parking brake chambers are required with this brake assembly.

QQ. BRAKE CHAMBERS

The rear brake service and parking chambers shall be properly sized based on the gross vehicle weight rating and type of brakes selected.

Haldex spring set parking brake chambers shall be supplied with a dash mounted Bendix PB-1 yellow handle push pull control located convenient to the driver and reachable by the officer. A light located in the driver's dash panel shall illuminate whenever the park brake is activated.

RR. REAR TIRES, WHEELS, AND HUBS

Four rear tires shall be Michelin radial tires with drive position tread. The tires shall be 12R22.5 16 ply, and shall have a GAWR of 28,880 pounds.

Four rear wheels shall be Alcoa 883620 aluminum 10-bolt, hub piloted disc, 22.5" x 8.25" with a maximum capacity of 29,200 pounds.

Each outer rear wheel outer surface shall be polished.

SS. HUB AND LUG NUT COVERS

Polished stainless steel axle hub and lug nut covers shall be installed on the rear axle outer wheels.

TT. DRIVE SHAFT

A balanced drive line from the transmission to the rear axles shall be engineered to handle the combination of the engine and transmission torque and the resistance created by the GVW (gross vehicle weight) rating.

UU. AXLE LUBRICANT

The axles shall be equipped with a petroleum based lubricant.

VV. AIR BRAKE SYSTEM

A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS-121 and the operating test requirements of NFPA 1901, shall be installed. The system shall be powered by an engine mounted, gear driven air compressor.

A pressure protection valve shall be installed to prevent the use of air horns or other air operated devices should the air system pressure drop below 80 psi (552 kPa).

The chassis air system shall meet NFPA 1901, latest edition for rapid air pressure build-up within sixty (60)

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seconds from a completely discharged air system. This system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the sixty (60) seconds build-up time.

WW. AIR DRYER

A Bendix model AD-9 air dryer with heater shall be installed on the frame rails under the cab. The Bendix dryer shall be used to maintain the warranty coverage on Bendix brake system components, and shall provide an added 200 cubic inches of air capacity.

XX. AIR HOSE OUTLET

The shall be a air hose outlet for low pressure and volume service air on the pump panel.

YY. AIR TANKS

The main system shall provide a minimum of 4860 cubic inches of air supply with not less than three reservoirs.

An additional air reservoir shall be provided with a PP-4 pressure protection valve with an inlet check valve. It shall add 1730 cubic inches of air storage capacity to the air brake system.

ZZ. TANK DRAINS

A heated automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves operated by stainless steel pull cables.

AAA. ANTI-LOCK BRAKE SYSTEM

An anti-lock braking system shall be installed.

III. CAB SPECIFICATIONS (EXTERIOR)

A. CUSTOM FOUR DOOR ALUMINUM /STAINLESS STEEL CAB

The cab shall be designed and engineered specifically for the rigors and ergonomics of emergency response. The cab and chassis shall be designed, engineered and assembled as a premium quality, integrated unit which provides for safe and comfortable entry and egress of firefighters properly clothed in full protective gear. Safe and comfortable transport shall be afforded each occupant who is properly seated, restrained and attentive.

The cab interior shall be styled by professional automotive designers. The interior trim shall be tooled to support repeatable high quality fit-up and appearance as well as serviceable component access. Interior surfaces shall be comfortable, easy to clean and long lasting under the rigors of contact with firefighter's clothing and personal safety equipment.

The cab and chassis, shall meet and/or exceed all applicable FMVSS and FMCSR, Title #49, U.S. Code Requirements for vehicles domiciled in the United States and all applicable CMVSS and Canada Transport

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Regulations for vehicles domiciled in Canada. The cab shall have passed all load and impact tests required for compliance certification with United Nations Agreement, "Standard for Protection of Cab Occupants", Regulation #29. A copy of test reports shall be available upon request.

B. CAB CONSTRUCTION AND DIMENSIONS

The cab shall be an aluminum/stainless steel structure.

The cab width and length shall permit installation of two seats in the front portion and up to four (4) SCBA seats in the rear portion (equally spaced) facing forward. The cab shall also permit installation of an EMS cabinet, location to be specified at pre-construction. The rear cab section roof shall provide 72" clear standing room.

An airbag system shall be installed and designed specifically for the cab configurations it is used in.

C. CAB DOORS AND STEPS

The cab shall have four (4) side mounted, flush fit, barrier height doors, which are weatherproof and sealed with hinges which allow the doors to open a full 90 degrees. Each door shall be equipped with interior paddle latches and exterior grab handle style latches. These doors shall include exterior key locks (all keyed the same) and push/pull tab interior locks. The doors shall have electric windows.

Each door shall be prevented from opening beyond ninety degrees.

Rear cab doors shall have reflective safety striping per NFPA specifications along the bottom of the door.

D. FRONT CAB SECTION

The cab front shall be constructed according to the manufacturer's specifications.

E. CAB GLASS

The cab doors and side windows shall have tinted automotive safety plate glass with solar management treatment to assist with the reduction of interior heat loading from UV penetration. The windshield shall be tinted laminated safety glass also with solar management treatment.

F. SIDE CAB WINDOWS

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The cab windows shall be tinted and include solar management treatment.

G. WINDOW REGULATORS

The two front cab doors and the two crew cab doors shall be equipped with electric window regulators.

H. EXTERIOR GRAB HANDLES

There shall be four exterior grab handles, one at each cab door opening. The grab handles shall be in compliance with NFPA 1901.

I. CAB MIRRORS

There shall be two 16" high x 7" wide side mounted rear view mirrors. They shall be the west coast style and bus mirror mounting shall not be accepted. Both mirrors shall be heated and remotely adjustable by the driver. The mirrors shall have an aerodynamic design to reduce wind buffeting and resultant vibration. The mirror housings shall have a chrome finish.

The same aerodynamic design shall be incorporated into the 7" high x 7" wide parabolic convex mirrors, mounted below the primary mirrors on each side of the cab.

There shall be one FDNY style convex mirror installed on the right front corner of the cab roof, to allow the driver to see the right front bumper.

J. CAB FENDERS

Black rubber fenderettes shall be installed. Mounting hardware shall not be visible on the exterior of the body. The fenders shall provide protection against water and mud spray onto the cab from the front tires.

K. FRONT MUD FLAPS

Black rubber mud flaps shall be installed behind the front wheels and securely fastened to the wheel well liners.

L. CAB TILT MECHANISM

The entire cab shall tilt up, providing access to the drive train for maintenance and repair, which prevent excessive cylinder speed especially when lowering the cab. A push button control with plug-in tether cable shall be provided. The tether cable shall allow the operator to have a view of the area around the cab while the cab is in motion. Each cylinder shall have a remote cylinder lock to keep the cab from twisting on a single lock system. The cylinder lock release system shall be incorporated into the tether remote to give the operator the ability to stand away from the cabs movement.

A 12-volt motor driven pump with a self-contained hydraulic oil reservoir and a manual backup pump shall be provided to power the tilt system. A monitor light shall warn the driver if the cab is not latched.

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M. CAB MOUNTS

The cab shall be supported as per the manufacturer's specifications. The cab suspension system will minimize cab vibration and road shock thereby extending cab life, while protecting mounted equipment and providing firefighters a quiet, more comfortable cab environment.

N. RADIO MOUNTING LOCATION

The cab shall have a wiring raceway installed, including properly sized power and ground studs for mounting of a dual head 800 Mhz radio direct from the battery. Customer-supplied radio wiring harness to be run to the pump panel radio box. The radio wattage power requirements shall be determined at the pre-construction conference. The radio is a Macom M7100 dual head radio. This radio Shall have 12volt power from the battery.

O. ANTENNAS

An AM/FM radio antenna shall be provided and installed on the forward left side of the cab roof, approximately 27.95" from center, above the driver's side door.

An antenna (806-900 MHz) shall be provided and installed on the forward center section of the cab roof above the driver's and officer's side doors.

An exterior mounted cell phone antenna shall be mounted and terminated at the officer's side of the dash area. A Panasonic docking station with RF pass thru for a Panasonic CF29 or later laptop.

P. CAB ROLLOVER PROTECTION:

Chassis shall have cab roll over protection and a cab integrity test certification report

Q. AIRBAGS:

Chassis shall have drivers side and passenger side airbags for maximum occupant protection.

IV. ELECTRICAL SPECIFICATIONS

A. 12 VOLT POWER SUPPLY

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The alternator shall be a Leece-Neville 400 amp, engine driven via a multi-groove polyvee belt and shall be automatically tensioned. The alternator shall meet all applicable NFPA 1901 requirements for performance.

B. BATTERIES

The battery system shall be provided per the manufacturers specifications. The batteries shall have a red Master Power on/off switch in close proximity to the engine start switch.

C. BATTERY BOX

A positive and negative post shall be installed on the lowest point of the side of the battery box, to provide jump start capability.

D. BATTERY CHARGE SYSTEM

The chassis shall be equipped with a Kussmaul Auto Charge 1000 battery charger with battery saver. The charger output shall be rated for 18 amps at 12 volts DC. The charger shall operate on 120 volts and draw a maximum of 10 amps. The charger shall utilize remote voltage sensing to compensate charger output for voltage drop in the charging circuit. The charger shall have a cab mounted bar graph charge level indicator to indicate charge level.

E. SHOREPOWER RECEPTACLE

A Kussmaul Super Auto-Eject shoreline receptacle shall be provided. The auto eject receptacle shall be completely sealed preventing road dirt contamination and shall be mounted on the driver's side of the vehicle to be determined at pre-construction. The electrical shoreline shall be automatically ejected when the engine starter circuit is engaged. A matching color spring-loaded weatherproof cover shall protect the receptacle.

F. ELECTRICAL LOAD MANAGEMENT SYSTEM

The chassis shall be equipped with an integral fire and emergency vehicle electrical package, which shall include the electrical requirements of the fire apparatus body and cab warning light devices, power distribution, load management, lighting administration, and interlock requirements as set forth and recommended by NFPA 1901.

G. INTERLOCK CONTROL AND MONITORING MODULE

The electrical package shall be equipped with an interlock module and monitoring system. The interlock module shall also control and indicate the following functions: Transmission lockup command, high idle control logic with adjustable speed potentiometer for electronic engines, engine run/starter lockout delay, select switch for foot throttle inhibit during pump operation, and cab and body "door ajar" indication with relay for "door open" alarm.

H. LOAD MANAGEMENT SYSTEM

The electrical package shall include an electrical load management system. The load management system features

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shall be easily configured through an on-board configuration menu. The system shall display the settings for each independent switch configuration and adjustable output.

I. POWER DISTRIBUTION SYSTEM

The power distribution system shall be per the manufacturer's specifications.

J. ELECTRICAL LOAD MANAGER INTERLOCK

The interlock module shall monitor and provide visual indication of the status (active/not active) and polarity (positive input/grounded input) of the NFPA related interlock inputs; pump/PTO shift switch, pump/PTO engagement switch, park brake switch and neutral switch.

The interlock module shall control and indicate the outputs for the following NFPA related interlock signals: Pump mode interlock, "Okay to Pump" and remote throttle interlock (pump panel throttle).

The interlock module shall also control and indicate the following functions: Transmission lockup command, high idle control logic with adjustable speed potentiometer for electronic engines, engine run/starter lockout relay, select switch for foot throttle inhibit during pump operation, and cab and body "door ajar" indication with relay for "door open" alarm.

V. CAB SPECIFICATIONS (INTERIOR)

A. CAB INTERIOR- GENERAL

The cab interior shall be per the manufacturer's specifications. Daily engine and transmission inspection and service checks shall be accessed from inside the cab. Fluids checked from inside the cab shall be engine oil, transmission oil, power steering fluid and windshield washer solvent. The engine enclosure shall be insulated and suitable for equipment mounting.

DRIVER INSTRUMENTS AND CONTROLS

The following instruments and warning lights shall be installed in the center panel directly in front of the steering column:

Cab Unlatched warning light	Alternator warning light
Low Coolant warning light	Turn signal indicators
Engine Air Filter Restriction indicator light	Headlight High Beam indicator
Stop Engine warning light	Check Engine warning light
Electric Tachometer with Hourmeter	Voltmeter w/ warning light and alarm
Oil Pressure gauge w/warning light & alarm	Electric fuel level gauge
Electric Speedometer with Odometer	Parking Brake Set indicator
Water Temperature w/warning light and alarm	
Transmission Temperature gauge with warning light and alarm	
Dual needle Air Pressure gauge with low air warning light and alarm	
ABS and ATC warning lights, retarder warning light (when specified)	
Low Fuel Level and Water in Fuel warning lights	

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DRIVER'S LEFT CONTROL PANEL:

Dash Lighting dimmer control
Headlight switch
switch

Mirror controls
Intermittent Wiper on/speed control Floor Lighting

DRIVER'S RIGHT CONTROL PANEL:

Main HVAC controls

Transmission control

DRIVER'S FLOOR AREA:

Steering Column and Wheel Controls
Suspended Brake Pedal

Foot Throttle

CENTRAL DASH CONTROL PANEL:

This panel shall be located between driver and officer and shall contain:

Red Master Battery Power On/Off switch Green Master Ignition On/Off/Start switch
Fast Engine Idle switch Parking Brake control
Siren Control panel Horn/Air Horn Selector switch

OFFICER'S SIDE CONTROL PANEL

Electric Speedometer without Odometer
Auxiliary Switch for Parking Brake

STEERING COLUMN

The steering column shall be a tilting and telescoping type, designed to collapse under impact. The steering column shall have a self-canceling turn signal switch with a headlamp dimmer switch, windshield washer switch and hazard flasher controls located in the control stalk.

STEERING WHEEL

An 18" diameter steering wheel with a center horn button shall be provided.

OVERHEAD CONSOLE

An overhead console shall be provided. It shall be designed into the cab ceiling and contain switches for the scene lights and the front 120V flood light.

OVERHEAD SWITCH CONSOLE

There shall be an overhead switch panel accessible by the driver and officer with one master and ten rocker switch locations. The panel shall include one red flashing "Cab Door Ajar" warning lamp and an amber "Body Door Ajar" warning lamp. Warning lamps shall be activated if the parking brake is released while the engine is running.

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GAUGE TYPE

Dash gauges shall be easy to read during daytime as well as night.

ADDITIONAL ROCKER SWITCHES

(Quantity) additional dash mounted rocker switches shall be installed to provide for additional electrical requirements.

B. INTERIOR CAB LIGHTING

There shall be six (6) Whelen LED overhead dome light clusters, each consisting of a red LED and a white incandescent flush mounted lamp. Each white lamp shall illuminate upon opening any cab door and each white or red lamp shall be operable from the seat positions when the doors are closed. The lights shall be activated by pushing directly on the light. A red courtesy light mounted under the dash at the driver and officer positions shall be controlled by a rocker switch mounted on the driver's instrument panel.

There shall be a single lamp with a red/clear lens installed in the center of each cab door lower panel. This lamp shall be automatically activated when the cab door is opened providing a red warning to approaching traffic and illuminating the cab step and ground. Reflective material installed on the interior lower portion of the cab doors in compliance with NFPA 1901..

C. WEATHER BAND RADIO

A seven-channel weather band radio with AM/FM/CD stereo shall be installed overhead of the driver in the cab. The radio includes four radio speakers in the cab.

D. AUXILIARY 12 VOLT OUTLETS

There shall be two automotive 12 volt auxiliary electrical outlets with covers mounted on the central dash panel for accessory items. Automatic self-resetting circuit breakers shall also be provided.

E. HVAC SYSTEM

The cab shall be equipped with a primary heater/defroster system with a fresh air inlet filter and air conditioning. The system shall provide environmental air treatment in accordance with published SAE standards. The defroster system shall include cold air returns across the top of the windshield to assist in the movement of air across the full height of the windshield without the necessity of auxiliary fans.

The heater and air conditioner shall have adjustable air outlets incorporated into the cab dash at torso and foot levels for optimum distribution of air. The front heater shall have a rating of 44,000 BTU/hour. The front air conditioner shall have a rating of 16,000 BTU/hour. Air flow shall be provided by a 380 CFM fan.

F. AUXILIARY HEAT/AIR CONDITIONING

An auxiliary (crew area) heating and air conditioning system shall be integrated into the design of the cab.

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G. REFRIGERANT COMPRESSOR

The compressor shall be per manufacturers specifications.

H. CONDENSER

A Red Dot R-4500 dual fan roof mounted air conditioner condenser shall be provided and installed. The condenser shall be painted to match the color of the surrounding roof area.

I. HVAC SYSTEMS OPERATION

The HVAC system shall be capable of and tested for cooling and heating a custom cab with a total open space of 360 cubic feet, and without occupants, to the following performance requirements.

The air conditioning systems shall reduce the in-cab temperature to 72 degrees Fahrenheit within 30 minutes from an ambient temperature of 110 degrees Fahrenheit and relative humidity, starting with a cold (ambient) engine. The air conditioning systems shall be the largest available (southern style).

The heating systems shall increase the in-cab temperature to 80 degrees Fahrenheit within 20 minutes from an ambient temperature of 0 degrees Fahrenheit, starting with a cold (ambient) engine.

J. SHADOW GRAY IMPERIAL INTERIOR

The cab interior shall be a gray color. Accent trim shall be gray. The following interior components shall be consistent in material and color:

The header and back wall shall be black/gray. The engine tunnel shall be molded in gray.

The upper panel of the doors shall be molded in gray. The sun visors will be gray padded vinyl.

All dash panels will be gray powder coated aluminum.

Top dash access door will be gray.

The overhead console shall be gray. The floor will have black non-skid vinyl mats.

The engine tunnel kick plates shall be brushed stainless steel.

The interior of each door shall have a soft touch ABS trim panel on the upper section. A stamped stainless steel kick plate shall be installed, extending approximately 32.5" up from the bottom of the door frame.

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K. MOUNTING PADS

Hard point mounting pads shall be provided on the engine enclosure to accommodate equipment trays and future accessory mounting as required. Aluminum diamond plate shall be installed on the interior back wall of the cab to facilitate tool mounting.

L. MAP BOX ON TOOL MOUNTING PLATE

On top of the engine enclosure shall be a map box. The map box shall be made of 1/8" aluminum and have three individual slots open on the top to house binders. Each slot shall be at a slant to hold binders at an angle. Size to be determined at the pre-construction conference.

The map box will be mounted to a large powder coated aluminum plate that shall be provided on top of the engine tunnel for mounting equipment. There shall be an opening at the rear of the plate for access to the in-cab fluid level dipsticks.

M. CAB SEATS

The driver's seat shall be an H.O. Bostrom Firefighter high-back air suspension with reclining seat back feature. The seat shall be readily adjustable by the driver in accordance with SAE J1517. The seat shall be positioned to accommodate a human in at least the 5th percentile female and 95th percentile male as defined in SAE J833. The seat shall be equipped with 6" fore/aft adjustment and vertical travel of 6".

N. OFFICER SEAT

The officer seat shall be an H.O. Bostrom "Firefighter Tanker" 450-Air-50 ABTS high back, air-suspension SCBA seat with a full seat cushion and have 6" fore/aft travel and 6" vertical travel. A protective back panel shall

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be provided. The seat shall have a Secure-All SCBA locking system to secure a 30 minute SCOTT cylinder.

O. REAR SEATING

The rear cab area shall contain four (4) H.O. Bostrom "Firefighter Tanker" 400CT SCBA high back non-suspended front facing seats. They shall be equally spaced and mounted on the rear wall facing forward. The seats shall have a Secure-All SCBA locking system to secure a 30 minute SCOTT cylinder. The middle seat shall be fixed design. The outside seats shall be a fold down design.

P. AIR PACK BRACKETS

All seats, with the exception of the driver shall have a Secure-All SCBA locking system to secure a 30 minute SCOTT cylinder.

Q. SEAT COVERS

All seats shall have bolsters, headrest and thigh surfaces covered with solid color flat finish vinyl.

R. SEAT BELTS

All seats shall be equipped with red three-point seat belts. With extensions on the locking side of the seat.

S. EMS CABINET

EMS cabinet shall be determined at pre-engineering. There shall be two cabinets in place of the rearward facing SCBA seats in the cab.

T. BUMPER WITH EXTENSION

The front bumper shall be a 10" high painted steel FDNY style bumper. It shall be attached to a bolted frame ahead of the center of the cab front. It shall extend the minimum amount to allow for the hose wells listed below, not more than 22". Safety striping to match the rear of the apparatus.

U. ALUMINUM TREADPLATE GRAVELSHIELD

A 3/16" bright finish aluminum treadplate gravel shield deck shall be provided for the extended front bumper.

V. CENTER HOSE WELL

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There shall be a center tray with drain holes to accommodate a igloo 35 quart cooler.

W. RIGHT SIDE HOSE WELL

There shall be an open hose well installed in the right of the front bumper gravel shield. The tray shall be fabricated of 1/8" smooth aluminum plate and shall have drain holes in the bottom corners. There shall be decking in the bottom of the hose well to promote air flow and drainage. The hose well shall have a capacity big enough for 35 feet of 5" soft suction hose stored as a roll.

X. LEFT SIDE HOSE WELL

There shall be an open hose well installed in the left side of the front bumper gravel shield. The tray shall be fabricated of 1/8" smooth aluminum plate and shall have drain holes in the bottom corners. There shall be decking in the bottom of the hose well to promote air flow and drainage. The hose well shall have a capacity for a minimum of 150 feet of 1-3/4" double jacket hose.

Y. HOSE WELL COVERS

There shall be hose covers installed on the front bumper hose trays. The hose cover type and style shall be determined at the pre-construction conference.

Z. FUEL DOOR

The fuel tank fill line shall be properly extended to fit the left side rear fender panel, and shall be fitted with a bright polished fuel fill guard and spring loaded door. The fuel door assembly shall match the appearance of fender panel mounted SCBA access doors. Permanently mounted on the door shall be a "Diesel Fuel" tag.

AA. ALUMINUM TREADPLATE ON CREW CAB ROOF

The rear portion of the crew cab roof shall be overlaid with 1/8" aluminum treadplate extending from the back edge of the roof forward and full width, inboard of the roof radius area.

BB. STAINLESS TRIM AT CAB DOOR OPENINGS

The exterior surface of all cab door openings shall be overlaid with mirror polished stainless steel full height to protect paint from equipment contact when entering and exiting the cab.

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CC. FLUID CAPACITY PLATE

A permanently mounted plate shall be installed in the driver's compartment. It shall identify the quantity and type of the following fluids used in the vehicle.

Engine Oil	Power Steering Fluid
Engine Coolant	Cab tilt fluid
Chassis Transmission Fluid	Transfer Case fluid
Pump Transmission Fluid Pump	Equipment Rack fluid
Primer Fluid	Air Compressor system lubricant
Drive Axle(s) lubrication Fluid	Generator system lubricant
Air Conditioning Refrigerant Air	Front tire pressure cold
Conditioning Lubrication	Rear tire pressure cold

DD. SEATING CAPACITY PLATE

A permanently mounted plate shall be installed in the cab, specifying the quantity of personnel the cab is designed to accommodate.

EE. VEHICLE INFORMATION TAG

Installed overhead and in clear view of the driver shall be a permanently mounted engraved tag with the overall height, length and weight of the completed apparatus.

FF. WARNING SIGNS

Warning signs shall be affixed to the rear panel and crew cab prohibiting personnel against riding on the outside of the vehicle, and to ride only inside the cab on the seats provided with seat belts fastened.

GG. TESTING

The truck shall be thoroughly tested by a certified, independent Third Party Testing Organization such as Underwriter's Laboratories, in accordance with the appropriate requirements of NFPA 1901.

VI. FIRE PUMP AND ASSOCIATED EQUIPMENT

A. PUMP ENCLOSURE

A side console pump enclosure shall be installed. A largest size available service door shall be installed on the right side of the pump enclosure. The dimensions of the pump enclosure shall be per

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the manufacturer's specifications.

B. CONTROL AND INSTRUMENT PANELS

Removable black pump panels shall be installed. All items on these panels shall be functionally arranged. These panels shall have large cutouts with stainless steel trim collars for ease of service of side mounted suction and discharge valves without requiring disassembly of the lower side panels for routine maintenance.

There shall be two-(2) drop down gauge panels on the pump operator's side; one-(1) upper and one-(1) lower. The upper gauge door shall contain the master pressure and suction gauges as well as engine monitor gauges. The lower gauge door shall contain the individual line pressure gauges.

All line gauges shall be functionally arranged and located directly above actuator handles in a horizontal plane and shall be directly corresponding. This shall eliminate confusion when operating any discharge valve and monitoring discharge valve pressures. All items shall be installed in accordance with NFPA 1901 standards.

A hooded light shall be installed above the left side pump connection panel. A switch on the pump operator's panel shall control the light.

Other items as required by the specifications shall be functionally arranged on the panels. Individual drain valve controls and master drain controls shall be located at the lower area of the side pump panels. All discharge gauges shall have color coded rings to be finalized at pre-engineering

C. STORAGE AREA

The area above the pump enclosure shall be used for miscellaneous equipment storage. The floor in this area shall be aluminum treadplate.

D. RUNNING BOARDS

Two (2) aggressive tread aluminum tread plate running boards, shall be bolted to the pump enclosure substructure. Running boards shall be a minimum of 12" deep.

E. RUNNING BOARD TRAYS

Two (2) drop in style running board trays, one on the driver's side and one on the officer's side shall be installed in the running boards, the dimensions shall be determined at the pre-construction conference, but generally they shall be as wide and deep as practical. The trays shall accommodate 50' rolls of 5" hose.

F. TAGS

The intakes, discharges, drains, controllers and gauges shall all be function and color-coded using

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individual labels installed on the pump panel using the guidelines as established in the NFPA 1901 section.16.9. to be discussed at pre engineering.

G. "NO STEP" TAGS

There shall be "No Step" tags installed identifying the non-step surfaces in and around the area of the pump enclosure.

H. PUMP COMPARTMENT WORK LIGHTS

Two (2) manually switched clear lens pump compartment work lights shall be installed one (1) each side of the pump enclosure.

I. PUMP IN GEAR LIGHT

One (1) of the pump panel lights shall be activated when the pump is shifted into gear from inside the cab. The remaining pump panel lights shall be controlled by the panel light switch on the pump operator's panel.

J. MASTER GAUGES

The master pump intake and discharge gauges shall be 6" diameter 30-0-400 PSI compound gauges with stainless steel case, fluorescent tipped pointer and black letters on a white background.

K. INDIVIDUAL LINE GAUGES

All discharges 1-1/2" and larger shall be equipped with an individual 3" diameter 0-400 PSI discharge gauge with stainless steel case, fluorescent tipped pointer, and black letters on a white background.

L. ENGINE GAUGES

The tachometer, engine oil pressure, engine water temperature and chassis voltmeter monitoring functions are incorporated into the Cummins Motors engine specified earlier, located at the pump operators panel.

M. ELECTRONIC GOVERNOR CONTROLS

Electronic governor controls system shall be a Fire Research INCONTROL 400 Complete Pressure Governor and master pressure display. No Exceptions.

N. FUEL GAUGE, PUMP PANEL

OCEAN CITY FIRE DEPARTMENT ENGINE SPECIFICATIONS

A chassis fuel level gauge shall be provided on the pump operator's panel. An additional sending unit shall be installed in the chassis fuel tank.

O. AIR HORN CONTROL, PUMP PANEL

There shall be an air horn push button control provided on the pump panel, properly labeled.

P. SPEED COUNTER

A mechanical speed counter shall be installed on the lower left side pump panel area for conducting fire pump certification tests.

Q. FAST IDLE

A preset fast idle set at 1400 rpm (or as otherwise required) shall be included with the electronic engine. A control switch mounted on the dash panel in the cab shall activate the high idle feature. An additional switch shall be on the pump panel.

R. WATER LEVEL GAUGE

The water tank level shall be monitored by a Fire Research Tank Vision electronic water level gauge, located on the pump operator's panel. This display shall have easy to read ultra bright LEDs that show the water level in quarter tank increments with a flashing display when the water level drops below 1/8 of tank capacity. The water level sensor shall be an electronic pressure transducer that is externally mounted on the tank, eliminating the need for internal probes.

S. HAND RAILS, PUMP ENCLOSURE

Two non-slip handrails shall be installed one each side at the top of the pump enclosure. These handrails are provided to access top of pump storage areas and accessories. Length and locations shall be determined at the preconstruction conference.

T. MIC/RADIO BOX

A Cast Products large microphone/headset storage compartment with approximate interior dimensions of 13" high x 7" wide x 6" deep shall be installed. The microphone compartment shall be recessed into the front face of the left front compartment adjacent to the pump operator's panel. The aluminum treadplate panel above the microphone compartment shall be louvered with an enclosed mounting area provided for a radio speaker shall be determined at pre-construction conference. It shall fit radio head, GE Macom M 7100 Radio..

U. DECK GUN

A Stang model CO302-11 deck gun (1200 gpm) shall be installed on the apparatus.

V. STREAM SHAPER & STACKED TIPS

OCEAN CITY FIRE DEPARTMENT ENGINE SPECIFICATIONS

A stream shaper with a set of quad stacked tips to match the deck gun shall be supplied with apparatus.

W. DECK GUN MOUNTING

The deck gun outlet shall be installed and provide a male 3" pipe thread for installation of the deck gun. This outlet shall be run to the rear of the pump module in the area of the water tank through the decking material. The exact location will be determined at the preconstruction conference.

X. BOOSTER REEL

A Hannay booster reel shall be provided, located in the storage area above the pump compartment, capable of holding a minimum of 150' of 1" hose. The booster hose shall be Reelite 1" cloth/rigid type. The reel shall not impede the access to the pump area.

Y. FIRE PUMP

A Waterous two stage 1500 gal/min. CU fire pump shall be installed. The pump shall be of a size and design and have the capacity of 1500 gallons per minute (U.S. GPM) NFPA 1901 rated performance.

Z. PUMP ASSEMBLY

The pump body and related parts shall be per the manufacturer's specifications.

AA. DRIVE UNIT

The drive unit shall be per the manufacturer's specifications.

BB. FIRE PUMP INSTALLATION

The pump shall be installed per the manufacturer's specifications.

CC. SACRIFICIAL ANODES

Four (4) replaceable sacrificial anodes shall be installed in the pump body to help prevent pump damage from corrosion or rust.

DD. PRIMING PUMPS

The priming pumps shall be compatible with a Waterous 2000 gpm fire pump and conform to standards outlined by the NFPA. One priming control shall both open the priming valve and start the priming motor. There shall be two (2) separate Trident air primers, one for the front suction and one (1) for the main pump cavity.

EE. PACKING GLANDS

The fire pump shall be equipped with long-life graphite packing glands.

FF. PUMP MANUALS

OCEAN CITY FIRE DEPARTMENT ENGINE SPECIFICATIONS

There shall be two-(2) pump operation and parts manuals supplied with the apparatus.

GG. FIRE PUMP PAINTING

The fire pump will be painted red. The stainless steel piping shall be left unpainted.

HH. FIRE PUMP WARRANTY

Waterous is to provide the best available warranty.

include an audible alarm.

JJ. INTAKE RELIEF VALVE

There shall be an intake relief valve shall be installed on the intake side of the pump per NPFA specifications.

KK. PUMP SHIFT CONTROL

The midship fire pump shift control shall be an Pneumatic mechanism that shall be located and positioned in a location that is in next to the transmission shift selector on the engine box with a light. The shift mechanism shall be wired into the vehicle interface module to interlock the engine rpm control, transmission direct drive hold mode, and pump engage.

The shift switch console shall consist of three-(3) indicator lights. This console shall include a green indicator light that shall be energized when the pump shift has been completed, and shall be labeled, "PUMP ENGAGED". It shall be as close to the transmission gear selector as possible.

A second green indicator light in the driving compartment shall be provided and energized when both the pump shift has been completed and the chassis transmission is engaged in pump gear. The light shall be labeled, "OK TO PUMP".

Electronic signals shall be provided at the firewall to facilitate installation of a warning light at the pump operator's position, indicating when the chassis transmission is in the neutral position and the parking brake is engaged.

A third green indicator light in the driving compartment shall be provided and energized when the pump shift has been completely disengaged, and the chassis drive axle has been engaged, and shall be labeled, "ROAD GEAR".

LL. PUMP SHIFT OVERRIDE

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There shall be a pump shift manual override installed on the lower left pump panel. The manual pump shift override shall provide a method of engaging the fire pump in the event of a failure of the powered pump shift.

A detailed instruction plate will be installed listing the pump manufacturers' recommended procedures to safely engage the pump shift override.

MM. PIPING

All shall be stainless steel. No galvanized shall be accepted.

Left and right side pump panel discharges shall be bolted directly to the discharge ports that are cast into the fire pump body for maximum flow efficiency.

A top of pump stainless steel manifold shall be installed to feed all auxiliary or non-rated discharges. All piping and fittings 1-1/2" through 3" shall be high-pressure flexible piping with stainless steel couplings or Schedule 40 stainless steel. Where large diameter piping is required, Schedule 10 stainless steel will be utilized.

Wherever possible, piping shall be flange bolted directly to the multiple port openings on the fire pump body. For ease of service and longer life of plumbing, Victaulic couplings shall be utilized where necessary.

NN. MASTER DRAIN VALVE

A master drain valve shall be installed and operated from the pump panel area. The valve shall be located lower than the main pump body.

OO. DRAINS

Individual drain/bleeder valves shall be Class 1 quarter turn style, labeled per NFPA standards for 2" and larger lines.

PP. TANK FILL, 2"

A 2" full flow pump to tank fill/pump bypass line shall be controlled at the pump operator's panel. The plumbing from the valve to the water tank shall be high-pressure flexible hose with stainless steel couplings. The tank fill fitting in the specified water tank shall be sized to accommodate this valve.

QQ. TANK TO PUMP

A 3" full flow Akron ball valve tank to pump plumbing with a flexible connection using double stainless steel clamp assemblies and a swing type check valve shall be installed and controlled at the pump operator's panel.

RR. ENGINE COOLER

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An auxiliary heat exchanger shall be provided for added engine cooling during pump operation. The auxiliary engine cooler shall be mounted directly behind the radiator tank and shall use water from the fire pump during pumping operation. The radiator plumbing shall include a draincock for coolant evacuation.

The control valve for the heat exchanger shall be located on the pump operator's panel, and shall be a Class 1 quarter turn ball valve with chrome-plated handle and an "Auxiliary Cooler" identification tag recessed into the face of the handle.

SS. PUMP COOLER

A Waterous TRV-L-120 thermal relief valve shall be mounted on the discharge side of the pump. This valve shall be completely automatic requiring no operator's controls. The valve shall open automatically if the temperature in the discharge cavity exceeds 120 degrees Fahrenheit, and shall reset automatically when conditions are normal.

A visual warning lamp and test switch panel shall be installed on the pump operator's panel to signal a "pump hot" condition. Discharge from the thermal relief valve shall be routed to the water tank.

TT. PUMP RATING, 1500 GPM

The pump shall be certified to meet the following deliveries from draft, through two-(2) 20-foot lengths of 6-inch suction hose with a 10-foot lift at a maximum elevation of 2000 feet and shall be underwriters certified.

100% of rated capacity at 150 psi net pump pressure

100% of rated capacity at 165 psi net pump pressure

70% of rated capacity at 200 psi net pump pressure

50% of rated capacity at 250 psi net pump pressure

VII. INTAKES/DISCHARGE

A. INTAKE, GATED 5" FRONT SUCTION

A full flow 5" front suction inlet shall be installed on the right side of the extended front bumper. A 6" Hale MIV-E electric operated butterfly valve shall be installed with position indicator lights and control, together with an air bleeder valve located at the pump operator's control panel. Two (2)

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drains shall be provided, and located at lowest points in piping. The piping shall terminate at the right side front gravel shield with a finished red painted 6" NST swivel, a grid strainer and a long handle cap.

The intake valve shall also incorporate a built-in suction side pressure relief valve, fully adjustable, preset at 125 PSI. Discharge from intake relief valve shall terminate beneath the running board with a 2-1/2" NST male adapter and label in accordance with NFPA 1901.

B. FRONT INLET MATERIAL

The front suction piping shall be full flow 5" schedule 10 stainless steel.

C. INTAKE, MAIN, 6" LEFT

A 6" NST main non-gated inlet shall be installed on the left side of the pump. This inlet shall be equipped with a removable screen and long handled cap. It shall be recessed as close to middle of pump as possible.

D. INTAKE, MAIN, 6" RIGHT

A 6" NST main non-gated inlet shall be installed on the right side of the pump. This inlet shall be equipped with a removable screen and long handled cap.

E. INLET, AUXILIARY, LEFT PANEL

There shall be one (1) 2-1/2" gated intake located on the left pump panel in the forward position. The Waterous full flow intake valve shall be located behind the panel and controlled at the valve with a swing handle. This inlet shall terminate with a chrome plated 2-1/2" female NST swivel, strainer, plug and chain. A 3/4" quarter turn bleeder for this intake shall be located in the bleeder/drain panel.

F. INLET, AUXILIARY, RIGHT PANEL

There shall be one (1) 2-1/2" gated intake located on the right pump panel in the forward position. The Waterous full flow intake valve shall be located behind the panel and controlled at the valve with a swing handle. This inlet shall terminate with a chrome 2-1/2" female NST swivel, strainer, plug and chain. A 3/4" quarter turn bleeder for this intake shall be located in the bleeder/drain panel.

G. DISCHARGE, BUMPER

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There shall be one (1) 2-1/2" discharge shall be located at the left side of the front bumper. This discharge shall be plumbed with 2-1/2" plumbing and controlled by a 2 1/2" Akron full flow valve with the control at the pump panel. The discharge shall terminate with a finish painted 2 1/2" NPT x 1-1/2" male NST swivel elbow. Drains shall be installed at the lowest point of the plumbing. This valve shall be Waterous Rack and Sector Valve. This will also have a Fire Research Insight Ultimate flow meter with pressure

H. DISCHARGE, LEFT PANEL

There shall be one (1) Akron 2-1/2" full flow droop snoot (with elbow) discharge valve shall be located at the left side forward area of the pump enclosure and direct connected to the discharge side of the pump. The discharge shall be controlled from the pump operator's panel and terminate with a 2-1/2" male NST coupling with a cap and chain. A 3/4" quarter turn bleeder for this discharge shall be located in the bleeder/drain panel. This valve shall be Waterous Rack and Sector Valve. This will also have a Fire Research Insight Ultimate flow meter with pressure.

I. DISCHARGE, RIGHT PANEL

There shall be two (2) Akron 4 " full flow discharges with valves shall be located at the right side forward area of the pump enclosure and direct connected to the discharge side of the pump. This discharge shall be electrically activated from the pump operator's panel complete with color coded valve position indicator lights and terminate with a 4" male NST x 5" Stortz 30 degree discharge elbow with a cap and cable. A 3/4" quarter turn bleeder for this discharge shall be located in the bleeder/drain panel. This will also have a Fire Research Insight Ultimate flow meter with pressure.

J. DISCHARGE, DECK GUN

The deck gun discharge shall be direct connected to the pump with an Akron 3" full flow valve with 3" plumbing and controlled from the operators panel through a electric controller device. This discharge shall be located above the pump enclosure, upward through the deck panel in the area of the water tank and terminate with a 3" companion flange. A 3/4" quarter turn bleeder for this discharge shall be located in the bleeder/drain panel. The outlet to be mounted on the left side above the pump enclosure for use with the deck gun to be controlled with an Akron electric valve. This will also have a Fire Research Insight ultimate flow meter with pressure.

K. DISCHARGE, REAR, LEFT

There shall be one (1) 2-1/2" discharge shall be run to the left rear panel of the body. A 2-1/2" Akron valve shall be installed and controlled at the pump operator's panel. Discharge shall be equipped with a chrome 2-1/2" discharge elbow, cap and chain. This valve shall be Waterous Rack and Sector Valve. This will also have a Fire Research Insight Ultimate flow meter with pressure

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L. DISCHARGE, REAR, RIGHT

There shall be one (1) 2-1/2" discharge shall be run to the right rear panel of the body. A 2-1/2" Akron valve shall be installed and controlled at the pump operator's panel. Discharge shall be equipped with a chrome 2-1/2" discharge elbow, cap and chain. This valve shall be Waterous Rack and Sector Valve. This will also have a Fire Research Insight Ultimate flow meter with pressure

M. HOSE BED DISCHARGES

There shall be three (3) 2 ½ inch discharges at front of the hose bed with Waterous Rack and Sector valves, locations to be determined at the preconstruction conference. Discharges shall be installed as high as possible in the hose bed to facilitate the storage of dead hose. This will also have a Fire Research Insight Ultimate flow meter with pressure

N. BOOSTER REEL DISCHARGE

The booster reel shall be controlled from a valve located on the pump operator's panel. Piping shall be sized to accommodate the full flow of 1" booster line. This shall be included on foam manifold.

O. ADAPTERS, REDUCING

Six (6) 2-1/2" NST female x 1-1/2" NST male chrome reducers with 1-1/2" caps and retaining chains shall be installed on the 2-1/2" discharges.

P. WATER TANK

The water tank shall have a capacity of 500 U.S. gallons and shall be constructed of Poly or Fiberglass. The hose bed height shall be **no higher than 58" from the ground.**

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Q. **TANK FILL FLANGE** A molded female flange for the pump to tank fill line shall be bonded into the tank with an inner deflection shield. The size of the flange shall be compatible with the specified tank fill valve.

R. **TANK FILL TOWER AND OVERFLOW PIPING**

A 12" minimum square fill tower shall be provided, with spring loaded hinged cover labeled "Water Fill" per NFPA standards with a removable screen strainer. One overflow/vent pipe shall be piped from the fill tower through the tank interior to the rear of the tank, positioned to dump behind the rear axle. Overflow/vent piping shall be of all molded construction.

S. **TANK SUCTION PIPING**

The tank to pump suction valve connection shall be piped into a 10" square floor sump equipped with an anti-swirl baffle plate. The suction piping size shall be compatible with the specified tank suction valve. Tank to pump piping shall be of all molded construction.

T. **TANK WARRANTY**

The water tank shall carry a manufacturer's unlimited time warranty for defects in material and workmanship under normal use and service. Warranty shall not apply to cases where the tank is subjected to misuse or lack of normal maintenance.

U. **12 VOLT ELECTRICAL SYSTEM INSTALLATION**

All 12 volt electrical equipment shall be installed to conform to federal and NFPA standards.

VIII. ADDITIONAL BODY FEATURES

A. **ALUMINUM/STAINLESS STEEL BODY DESIGN AND CONSTRUCTION**

As per manufacturer's specifications.

B. **RUBRAILS**

The rub rails shall be black rubber. This design is required for superior energy absorption and ease of

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replacement.

C. COMPARTMENT EDGES

The outer horizontal and vertical edges of the side compartments shall feature a 1/4" break-formed radius.

D. ROLLUP DOORS

All compartments of the body shall be equipped with Robinson Roll-O-Matic doors. Doors shall be as large as practical to provide ease of access to equipment.

Door features include: brushed textured anodized finish, drip rails above the doors to carry water away and provide a seal between the shutter and compartment, an inner seal between the slats to prevent noise from vibration and inhibit water and dust penetration, double wall slats to resist deflection, one piece aluminum track, full width lift bar with 2" deep finger pull for easy one-hand operation, and a bottom door seal.

Compartment light switches for the rollup doors shall be magnetic reed switch type. Activation shall be controlled by magnets and sensors protected and concealed in the lift bar and lift bar striker assembly.

E. LEFT SIDE BODY COMPARTMENTS

Compartment L1, ahead of the rear wheels, shall be approximately 30.0" wide x 64.5" high x 27.0" deep in the lower 30.0" and 14.0" deep in the upper 34" with one (1) rollup door.

Compartment L2, above the rear wheels, shall be approximately 54.0" wide x 34.0" high x 14.0" deep with one (1) rollup door.

Compartment L3, behind the rear wheels, shall be approximately 40.0" wide x 64.5" high x 27.0" deep in the lower 30.0" and 14.0" deep in the upper 34" with one (1) rollup door.

There shall be dividers between the upper left side compartments.

F. RIGHT SIDE BODY COMPARTMENTS

Compartment R1, ahead of the rear wheels, shall be approximately 30.0" wide x 34.0" high x 27.0" deep with one (1) rollup door.

Compartment R2, behind the rear wheels, shall be approximately 40.0" wide x 34.0" high x 27.0" deep with one (1) rollup door.

G. HIGH RISE PACK STORAGE AREA

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An area underneath the (4) forward facing seats inside the cab, approximately 70" wide X 16" deep X 13" tall, shall be enclosed with aluminum diamond plate to facilitate the storage of hose. The ends of the enclosure shall remain open and accessible from both sides of the cab. The floor of the storage area shall be smooth to facilitate easy removal of the hose. This shall be reviewed at the preconstruction conference.

H. BEAVER TAIL AREA

The rear of the body shall be equipped with square beaver tail extension panels for a streamlined appearance and to provide added support for the rear tail board. Tailboard shall be reinforced for maximum strength.

Approximate measurements to be decided at pre-construction conference

I. REAR PANEL COMPARTMENTATION

Rear panel step compartment REAR 1, shall be as large as possible with one (1) Robinson rollup door. This compartment shall be wired for one Hurst Simo pump (240V).

J. PROTECTION PANELS AND SCUFF SURFACES

Install 1/8" aluminum treadplate protection and trim panels as follows:

Over the side body compartments full length and width with a built-in drip rail. This treadplate shall be an overlay of the actual stainless steel compartment ceiling.

Entire rear panel between the beavertails from hose bed floor to rear step.

On the inside face of the beavertails, full height.

Full height on the front face of compartments from compartment tops down to the pump area running boards.

K. EXTERIOR BODY SURFACES

The aluminum surfaces of the body shall be painted as detailed under "PAINTING - GENERAL REQUIREMENTS".

L. COMPARTMENT VENTILATION

Install a louvered vent on the backside of each compartment. Vents shall be installed in a manner that will help prevent water from entering the compartments.

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M. WHEEL WELL AREA

The construction of the wheel well assemblies shall be an integral part of the overall body design.

Black rubber fenderettes shall be installed. Mounting hardware shall not be visible on the exterior of the body.

Black rubber mud flaps shall be installed behind the rear wheels and securely fastened to the wheel well liners.

N. WHEEL WELL SCBA/EXTINGUISHER STORAGE

There shall be three (3) compartments suitable for storage of two (2) spare SCBA cylinders each, located one on the left side and two on the right side rear fender panels. One lap style brushed stainless steel gasketed access door with positive trigger latch mechanism shall be installed per compartment. There shall be one (1) compartment suitable for storage of one (1) spare SCBA cylinder located on the left side fender panel in the area of the fuel fill.

O. HOSE BODY AREA

The upper hose body size shall be determined at the preconstruction conference. Hose bed flooring shall be Duradek T3500 white fiberglass grating installed full width and length of the hose bed.

Hosebed shall be 54 to 58 inches from the ground.

Four Smooth aluminum hose bed dividers with extruded aluminum mounting bases shall be installed in the hose bed. The upper and rear edges of the dividers shall be reinforced full length with aluminum tubing.

The dividers shall be installed on a series of rigid channels that span the width of the hose bed, and will provide adjustment from side to side with standard hand tools and no drilling.

P. HOSE BED COVER

A heavy duty reinforced red vinyl hose bed cover with rear weighted flap and Lift-O-Dot style hold downs shall be installed.

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Q. FRONT OF BODY STEPS

Two (2) large South Park LFS46ZC bright finish folding step shall be mounted on the left side front face of the body, one 18", and one 36" above the pump area running board.

One (1) large South Park LFS46ZC bright finish folding step shall be mounted on the front face of the right side body 18" above the pump area running board.

R. REAR PANEL STEPS

A rear step assembly shall be installed. The rear tail board shall be full width of the body, spaced away for drainage and shall be no more than 20" deep.

Install two (2) large South Park LFS46ZC bright finish folding steps, one each side on the lower rear panel at a height not exceeding 18" above the rear tail board.

A step with mitered corners shall be installed above the rear panel compartment for ease of access to the hose bed area.

S. HAND RAIL BETWEEN STANCHIONS

A horizontal hand rail shall be installed full width between the stanchions at the upper rear of the hose body, rubber covered. This hand rail shall incorporate a Whelen traffic Advisor light.

T. VERTICAL HAND RAILS

In place of the vertical hand rails, (2) Fire Research Focus 750 watt, 120 volt telescopic lights shall be installed, see item NNN this section.

U. REAR TOW EYES

Two (2) heavy duty painted tow eyes shall be mounted to structural framing extensions attached directly to chassis frame rail ends, extended to below the bottom of the rear compartment. These rear

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tow eyes shall not be attached to the body in any way, and shall properly distribute towing forces evenly on the chassis frame rails. In addition to the chassis frame rail extensions below the bottom of the rear compartment, the frame rails shall be extended into the rear compartment the minimum length required to accommodate a 1" shackle.

V. LADDER BRACKETS

The ground ladders shall be mounted on the right side of the body above the compartments, using a Zico electric ladder rack, model # _____.

W. FOLDING LADDER STORAGE

Folding ladder storage bracket shall be provided. The ladder bracket shall be installed on the shelf above the right side compartments using Ziamatic quick-release clamps.

X. PIKE POLE STORAGE

(4) aluminum tubes shall be installed to hold four (4) Fire Hooks. They shall be installed on the shelf above the right side compartments.

Y. HARD SUCTION STORAGE

Two (2) hard suction storage trays shall be installed one (1) above the left side compartments and one (1) above the right side compartments.. Trays shall be equipped with quick-release straps and shall be mounted in Unistrut channels for vertical adjustment.

Z. DECKING, COMPARTMENT

Black Mateflex self-draining interlocking vinyl tiles, with beveled edge caps, shall be provided on the floor, shelves and trays of each enclosed compartment.

AA. SHELVING

Four (4) shelves shall be provided. The shelves shall be constructed of 3/16" smooth aluminum plate. The front and rear edges shall be formed up 2". Adjustable shelves shall be mounted on Unistrut type channels to provide height adjustment with simple standard hand tools.

BB. TRAYS, 250 POUND CAPACITY

Two (2) floor mounted trays shall be provided. The trays shall be constructed of 3/16" smooth aluminum plate with at least a 3" lip formed around the perimeter and the corners welded. Trays shall

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be mounted on full extension ball bearing slides with a minimum rating of 250# per pair. The trays shall be capable of being locked in both the extended and retracted positions.

The locations for all compartment accessories shall be determined at the pre-construction conference.

CC. NFPA WARNING LIGHT SYSTEM OPERATION

Emergency Warning System:

Rocker switches located on the cabs dash activate the emergency warning lights system. The rocker switches shall have an internal indicating light to show when the switch is in the on position. Individual switches shall be installed to allow pre-selection of various components of the warning system. The switches shall be mounted centrally located for easy service and identification. The electrical system components and wiring shall be readily accessible through service panels.

The Optical Warning Device System:

The Optical Warning Device System shall comply with NFPA 1901 without exception. To minimize the load placed on the electrical system during apparatus start-up for an emergency response, a sequential switching device shall be installed to energize the optical warning devices.

The warning system shall be divided into upper and lower warning levels. The optical warning system on the apparatus shall be capable of two separate signaling modes during emergency operation. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency, and is calling for the right-of-way. The other mode shall signal that the apparatus stopped and is blocking the right-of-way.

Parking Brake Position Sensing Switch:

When the master warning system switch is closed, and the parking brake released, the warning devices are signaling the call for right-of-way to be activated. When the master warning system switch is closed and the parking brake set, the warning devices signaling blockage of the right-of-way are activated.

Certification of Compliance:

The apparatus manufacturer shall provide a Certification of Compliance of the warning system by one of the following means:

1. Certification that the system was installed within the geometric parameters specified by the manufacturer of the system, and referencing the optical source test reports provided by the manufacturer of the system.
2. Certification that the mathematical calculations were performed by a qualified person, demonstrating that the combination of individual devices as installed meet the requirements of the current NFPA standard. This calculation is based on test reports for individual optical sources provided by the manufacturer of the device.
3. Certification of actual measurements of the lighting system were performed after installation on the apparatus.

DD. LIGHTS, ICC MARKER

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Amber ICC Whelen super LED marker lights shall be installed on the forward section of the cab roof, spaced appropriately for maximum visibility.

EE. CAB FRONT WARNING LIGHTS AND LIGHT BARS

Whelen super LED strobe intersector lights, one each side with a red contoured lens, shall be mounted in the headlamp bezels. These lights shall be visible to side and front approaching vehicles. The housings shall be chromed plastic.

Whelen 500 series red super LED warning lights shall be mounted one each side of the cab above the engine air flow tunnel grilles over each front wheel.

Four (4) Whelen 600 series red super LED warning lights shall be mounted, two each side over the headlamps.

A Whelen FN72VLED, 72" long super LED lightbar shall be installed front facing on the cab roof.

A Model 200 W Roto Ray warning light to be mounted on the front of the cab above the grille. Two red and one white light.

Two (2) Whelen FNMINI, 24" long super LED roof mounted lightbars shall be installed one each side facing broadside above the crew cab doors.

One 3M opticom com shall be installed in the middle section of the front light bar to be switched separately.

FF. BODY WARNING LIGHTS

Two (2) Whelen RB6T series red lens rotating halogen beacons shall be installed on the upper rear hose bed stanchions.

Six (6) Whelen 600 series red super LED lights shall be installed three each lower side of the vehicle. Lamps shall be installed with Whelen 6E chrome plated flanges.

Two (2) Whelen 600 series red super LED lights shall be installed above the stop/tail/turn signals. Lamps shall be installed in polished aluminum spacer castings.

GG. ALTERNATING FLASHING HEADLIGHTS

A solid state-flashing unit shall be provided for alternately flashing high beam headlights, and shall be controlled from the center overhead console. When high beam lights are required for driving while in the flashing mode, activating the high beam light circuit shall automatically cancel the flashing mode.

HH. REFLECTORS

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Chrome trimmed Truck-Lite reflectors shall be installed on the apparatus in compliance with Federal Motor Vehicle Safety Standards and NFPA 1901.

II. CLEARANCE LIGHTS

There shall be a total of seven (7) clearance/marker lights installed on the body. Five lights shall be red super LEDs installed at the rear of the body and two shall be amber LED marker lights installed midship one each side of the body.

JJ. HEADLIGHTS

Four (4) rectangular halogen headlights, two each side, shall be installed in the cab headlight bezels.

KK. TURN SIGNALS & CORNERING LAMPS

Each front turn signal lamp shall be a Whelen model 700 series rectangular super LED that shall be mounted above each warning light bezel at the belt line and below the windshield.

Two-(2) incandescent lights, each with an amber contoured lens, shall be mounted to the side of the headlamp bezel. These lights shall be visible to side and front approaching vehicles. The housings shall be chromed plastic.

A heavy-duty, non-polarity sensitive electronic flasher shall be provided to control the turn signal and emergency four-way flasher requirements.

Each side of the front bumper shall have a Whelen 500 series halogen light with a white lens surface mounted. The lights shall be activated by the turn signal to illuminate passage through a turn.

LL. STEP LIGHTS

There shall be four (4) clear lens step lights mounted in a manner that illuminates the pump area running boards and the rear step area. Two (2) lights, one each side shall be installed on the front body bulkheads. Two (2) lights, one each side shall be installed at the rear step area. These lights shall be installed in compliance with NFPA 1901.

MM. UNDERBODY LIGHTS

Eight (8) clear lens underbody work lights shall be installed under the cab and body around the perimeter of the vehicle, in compliance with NFPA 1901. The lights shall be strategically placed to illuminate the immediate ground area around the unit. The cab underbody lights shall be switchable but automatically activate when the cab doors are opened, and the remainder of these lights shall be switched in the cab.

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NN. UPPER PUMP AREA ILLUMINATION

Illumination shall be provided for the upper pump enclosure area in accordance with NFPA requirements.

OO. DECK LIGHTS

There shall be two (2) Unity AG-S, 6" chrome plated individually switched at the light hose bed lights installed on the rear stanchions, one each side.

PP. LICENSE PLATE LIGHT

A license plate light and bracket shall be installed on the left side rear of the body with the light to be wired to come on with the headlights.

QQ. STOP, TURN, AND BACK-UP LIGHTS

Install Whelen 600 series lights in Whelen CAST4 polished 4 lamp bezels one each side on the lower rear body corners. Each bezel shall be mounted with closed cell neoprene molding around the full perimeter contact surface area of the body to seal out moisture and eliminate electrolysis.

The tail lamps shall be installed in the following descending order:

TOP	Red LED Stop/Tail Light
CENTER	Amber Arrow LED Turn Signals
BOTTOM	Clear Lens LED Maximum Intensity Back-Up
Bottom Warning	Red 64 Series led warning light

RR. COMPARTMENT LIGHTS

Two (2) ROM Corporation light strips shall be installed in each compartment of the body.

SS. MIDSHIP MARKER/TURN INDICATOR LIGHTS

The body shall be equipped with a midship amber incandescent marker/turn indicator light each side in compliance with NFPA 1901 and FMVSS.

TT. AIR HORNS

Two (2) Grover 1510 chrome air horns shall be furnished and installed in the front cab bumper. A pressure protection valve shall be installed in-line to prevent loss of air from the vehicle air brake system. An air/electric horn selector switch shall be provided which will allow either the electric or air horns to be actuated by the horn button on the steering wheel. The air horns shall also be activated by a foot operated momentary switch located on the officer's side of the engine box.

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UU. DUAL ELECTRIC HORNS

Dual electric horns rated at 400hz/500hz shall be installed under the cab, controlled through the horn ring on the center of the steering column, and wired through a dash mounted selector switch allowing control of either the electric or air horns.

VV. MECHANICAL SIREN

A Federal Model Q2B siren with chrome plated housing shall be mounted on the front cab bumper extension right side as directed at the pre-construction conference. One (1) momentary foot switches shall be provided, installed one each side of the cab, one the toe board and one mounted to the engine box on the officer side. There shall be an electric brake control installed in the cab, at the drivers switch panel, properly labeled.

WW. POWER CALL SIREN

A Power Call Adam 6 electromechanical siren shall be mounted using a swivel bracket capable of 180 degree rotation below the overhead console to be determined at the pre-construction meeting. The siren shall be activated by foot switches located one each side of the cab. .

XX. BACK-UP ALARM

A Code 3 model D50C electronic back-up alarm producing 97 dB shall be installed and shall automatically activate when the truck is shifted into reverse gear.

YY. REAR STEP TO CAB BUZZER SYSTEM

There shall be a rear step to cab buzzer system installed per NFPA specifications.

ZZ. HYDRAULIC GENERATOR

A 15KW Harrison, 15,000 watt hydraulic driven 120/240-volt generator shall be installed on the apparatus. Generator shall produce single-phase power at 60 HZ.

The system shall utilize one of the chassis transmission PTO outlets to power a pressure compensated hydraulic pump assembly. The hydraulic output of the hydraulic pump assembly shall power the modular hydraulic motor-generator assembly. The installation shall include a "soft-start" protection feature for the generator. There shall be an activation switch in the cab for the driver as well as at the pump.

All connections to this module (hydraulic and electrical) shall be easily removable for fast removal of the unit from its mounting location. Hydraulic hose fittings shall be provided between the hydraulic pump and the generator assembly.

The design shall incorporate the maximum protection from the effects of oil contamination that is

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available. All hydraulic, electrical, and electro-mechanical components utilized in the system shall be performance matched.

AAA. POWER TAKE-OFF

There shall be a hot shift PTO installed to power the generator.

BBB. GENERATOR MOUNTING LOCATION

The generator shall be located above the pump on the right side of the pump enclosure.

CCC. GENERATOR PERFORMANCE DISPLAY

The generator shall be equipped with a Fire Research compact FROG-D display to monitor generator performance. The display unit shall include bright red digital LED's to show generator voltage, amperage draw on lines 1 and 2, and frequency in hertz. The display shall also include a Mode switch that will show total generator run-time in hours, and the current generator system oil temperature. The FROG-D shall be located adjacent to the circuit breaker panel, easily seen by the operator.

DDD. LINE VOLTAGE ELECTRICAL SYSTEM REQUIREMENTS

The specified line voltage power unit shall be installed with strict compliance with NFPA 1901 guidelines, and all associated components and equipment to be installed shall comply with NFPA 70 and applicable standards of the National Electrical Codes. Line voltage electrical system equipment and materials used with the system shall all be listed, properly installed in accordance with the manufacturer's instructions, and only in the manner for which they have been listed.

EEE. SYSTEM INSTALLATION AND WIRING

The generator system shall include proper grounding and bonding as required in NEC "Portable and Vehicle Mounted Generators". Non-grounded systems shall not be used. Only stranded or copper conductors shall be used for grounding and bonding purposes. An operator instruction plate, and generator rated performance specification plate, shall be permanently installed at the circuit breaker control panel.

Wiring shall be properly installed from the circuit breaker panel to all specified 120/240 volt accessories, including permanent circuit identification and rating specifications as applicable. Wiring materials used for the specified accessories shall be either THHN type in non-metallic liquid tight flexible conduit, or heavy duty SO copper cable. Either type of wiring shall be rated for 600 volts at not less than 194 degrees Fahrenheit.

FFF. LINE VOLTAGE TESTING REQUIREMENTS

The line voltage electrical system and associated equipment shall be thoroughly tested, and the

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testing shall verify electrical polarity, and that all wiring connections have been properly made. In addition, the system shall undergo a thorough operational test under full-load of the generator manufacturer's continuous duty power rating.

All system testing shall be performed when the apparatus is completed, and in accordance with the requirements of NFPA 1901.

GGG. CIRCUIT BREAKER PANEL

A Square D QO circuit breaker panel shall be installed in the left front compartment and shall be wired to the line voltage power supply. The breaker box shall include a main breaker and up to 20 single pole circuit breakers, each of which shall be properly sized to suit the specified line voltage lights and accessories. The face of the circuit breaker control panel shall be permanently labeled with the circuit name or function designation of each individual breaker.

HHH. ELECTRICAL RECEPTACLES

Four (4) 110V receptacles with weatherproof spring loaded covers shall be installed, location to be determined at pre-construction. The receptacles shall be furnished with NEMA L5-15, 120-volt 15-amp 3-prong twist lock configuration; to be wired for 20 amps.

One (1) 240V receptacle with weatherproof spring loaded cover shall be installed in the rear compartment, location to be determined at pre-construction.

Four (4) Duplex, 115 volt receptacles shall be installed in the cab, locations to be determined at the preconstruction conference. The receptacles shall be live both via the shoreline and generator operation.

III. CABLE REELS

Install a single Hannay ECR1618-17-18 electric rewind live cord reel. The reel shall be hard wired to a separate 120/240 volt circuit breaker, and shall be equipped with 200' of 10/4 SEOW-A type copper cable ending with a 20 amp NEMA L5-15 female connector. A rewind switch shall be conveniently located for ease of operation and visibility. Permanently mounted reel rating specification tags shall be installed adjacent to the reel in accordance with NFPA 1901 standards. This reel shall be mounted over the pump or in the dunage area midship.

JJJ. ROLLERS WITH BALL STOPS

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The electric rewind cord reel shall each have a 4-way stainless steel roller assembly installed to ease deployment and retraction while helping to prevent damage to the cable. Additionally, there will be a ball stop installed near the cord end to help protect the cable end and prevent the cable from being overwound on the reel.

KKK. ELECTRICAL JUNCTION BOXES

At the end of the cord shall be a Circle D model PF-51 G junction box with high visibility yellow finish, Lexan lens power indicator light, and four (4) 120 volt NEMA L5-15, 15 amp twist locks. Included shall be aluminum holster style junction box mounting bracket designed for quick-release deployment.

LLL. 12 VOLT FRONT CAB LIGHT

One (1) Fire Research 12 volt HID maximum wattage floodlight shall be installed in the middle of the cab above the windshield. On-off switching shall be controlled at a switch in the cab on the officer's side.

MMM. 120 VOLT SIDE CAB LIGHTS

Two (2) Fire Research 750 watt Optimum lamp head 120 volt telescopic floodlights shall be installed pole mounted on each side of the back rear of the cab. On-off switching shall be controlled at the circuit breaker panel.

NNN. 120 VOLT LIGHTS, REAR OF BODY

There shall be two (2) Fire Research Focus 750 watt, 120 volt telescopic lights located one each side at the rear of the body, switched at the breaker box. These lights shall have the handrail grip for ease of extension.

OOO. ACCESSORIES UP INDICATOR

The extendable and telescopic devices shall have switches wired to a red flashing light conspicuous to the driver to indicate if these devices are not properly stored for travel. The light shall be labeled "Danger - Do Not Move Apparatus When Light Is On". The warning light shall be wired to activate only when the push-pull parking brake has been disengaged.

PPP. SAFETY VISION CAMERA SYSTEM

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The truck shall be equipped with a Safety Vision SA 620 closed circuit back-up camera system with a 5" color monitor installed in the cab on a swivel base within easy reach and view of the driver. The color camera shall be located on the rear body panel and shall automatically activate when the chassis transmission is placed into reverse gear while the engine is running. Side vision shall also be provide on the right side of the apparatus. SA 622 side view Camera.

QQQ. TRAFFIC ADVISOR DIRECTIONAL LIGHT

There shall be one (1) Whelen Traffic Advisor, TA837L LED traffic directing light with eight-(8) amber Ll lamps shall be installed. The Traffic Advisors four (4) modes of operation: left arrow, right arrow, center out and all flash, shall be controlled from the cab with an L status display and control. The location of the Traffic Advisor shall be on the horizontal hand rail between the stanchions at the upper rear of the hose body.

RRR. DAVID CLARK VEHICLE INTERCOM SYSTEM

A series 3800 Vehicle Intercom System shall be installed to allow communications between all riding positions including a position at the pump panel. All positions shall have the ability to communicate between personnel by voice activation. The driver, officer, and pump panel positions shall have the ability to transmit via radio utilizing push to talk. **NO** exceptions permitted.

IX. EXTERIOR FINISH

A. PAINTING - GENERAL REQUIREMENTS

The final finishing of the apparatus shall be performed to the highest standards of the fire apparatus industry.

All removable components and accessories shall be fitted to the body and then removed prior to final finishing ensuring paint has been applied under all components and accessories.

Care shall be taken during paint preparation to properly fill all surface imperfections. Welded seam areas shall be ground flush and metal finished. Bare metal surfaces shall be etched chemically to

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insure proper adhesion. The primer shall be sanded to assure a smooth surface for painting.

The cab and body shall be finished using PPG urethane enamel paint for a high gloss and hard finish. Furnish one-(1) pint of touch-up paint, including hardener to match each of the exterior colors.

B. CAB PAINT

The cab exterior shall be painted White/Red to match existing departmental colors.

C. CHASSIS PAINT

The chassis frame and all frame mounted components, less the engine and transmission, shall be painted with red high solids polyurethane paint.

D. SINGLE COLOR BODY PAINT

The exterior of the body shall be painted Red to match the cab primary color.

E. COMPARTMENT INTERIOR FINISH

The interior of all compartments shall have a machine sanded DA finish that shall not be painted. All interior seams shall be sealed with a silver silicone caulk.

F. HOSE BED FINISH

The interior of the hose bed shall have a machine sanded DA finish that shall not be painted.

G. BODY UNDERCOATING

The body shall be thoroughly prepared and sprayed with a rust inhibiting undercoating. Areas to be sprayed shall include the backsides and undersides of all compartments. All substructure under the body shall be undercoated thoroughly.

H. SCOTCHLITE LETTERING

There shall be up to sixty (60) 3" Scotchlite reflective letters applied to the apparatus to be determined at pre-engineering.

I. SCOTCHLITE STRIPING

There shall be a 10" WHITE Scotchlite reflective stripe shall be installed around the perimeter of the apparatus in compliance with NFPA 1901.

J. DETAILING

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The apparatus shall be thoroughly washed and detailed in preparation for final acceptance.

K. DELIVERY

The apparatus shall be delivered to the location designated by the Purchaser.

X. LADDERS AND EQUIPMENT PROVIDED

A. LADDERS

One-(1) Alco-Lite PRL-14, 14' aluminum roof ladder shall be provided.

One-(1) Alco-Lite PEL-24, 24' 2-section aluminum extension ladder shall be provided.

One-(1) Alco-Lite FL-10, 10' aluminum folding ladder shall be provided.

A bright yellow foam padded Skull Saver shall be supplied for installation on ladders that protrude beyond the rear of the body to help protect personnel from running into the ladders.

B. EQUIPMENT

One-(1) Fire Hook's RH6' NY Roof Hook shall be provided with the apparatus.

One-(1) Fire Hook's RH8' NY Roof Hook shall be provided with the apparatus.

One-(1) Fire Hook's RH10' NY Roof Hook shall be provided with the apparatus

One-(1) Boston Rake Hook 6'

One-(1) 6 lb. flat head axe with a fiberglass handle and mounting brackets shall be supplied and shipped loose with the apparatus.

One-(1) 6 lb. pick head axe with a fiberglass handle, mounting brackets and a scabbard, shall be supplied and shipped loose with the apparatus.

One-(1) Amerex A411, 20 lb. ABC stored pressure dry chemical fire extinguisher with mounting bracket shall be supplied with the apparatus and shipped loose.

One-(1) Amerex 331, 20 lb. CO2 fire extinguisher with mounting bracket shall be supplied with the apparatus and shipped loose.

Two-(2) 10' lengths (or as long as possible for body) of 6" Kochek PVC (drafting only) suction hose shall be supplied with a 6" NST long handle female coupling on one end and rocker lug male coupling on the other end.

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One-(1) 6" Kochek suction strainer shall be supplied with a mounting bracket.

Two-(2) Ziamatic SAC-44-E folding wheel chocks with underbody mounting brackets shall be installed under the compartment forward of the left rear wheels.

Four-(4) Red Head 148-3 wrench holders, each with one hydrant and two universal spanner wrenches, shall be installed on the apparatus.

There shall be a generous size bag of assorted miscellaneous stainless steel fasteners like those used in the construction of the truck shipped with the completed vehicle for use as spares.

All NFPA 1901 equipment that is required for this apparatus which is not listed in this proposal is the responsibility of the Fire Department to provide.

XI. WARRANTIES AND MANUALS

A. As per manufactures specifications, to be completely explained.

B. CUSTOMER SERVICE MANUAL

Two (2) detailed service manual covering the specific options of the chassis as ordered, complete with troubleshooting guides in each section, shall be delivered with the completed apparatus.

C. ELECTRICAL SCHEMATICS

Electrical Schematics shall be supplied for the apparatus in compliance with section 4.19.2.3 of the current edition of NFPA 1901.

D. "AS BUILT" PARTS MANUAL

Two (2) "as built" parts manual, complete with detailed bills of material, assemblies, sub-assemblies, piece parts used to build the chassis shall be organized sequentially specific modules relating back to the bills of material. Each reference page shall contain the serial number of the chassis, the date the reference page was printed, the bill of material description and the page number. Additionally, each illustration shall have a reference number and each part number shall identify the manufacturing and vendor part number as applicable.

E. ENGINE and TRANSMISSION MANUALS

There shall be an engine and transmission manual supplied with the apparatus in compliance with section 4.19.2.2 of NFPA 1901.

F. OPERATORS and MAINTENANCE MANUALS

Each apparatus shall include two-(2) sets of operation and service documents compliant with section 4.19.2.1 of the current edition of NFPA 1901.

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XII. OPTIONS

A. **INDEPENDENT FRONT SUSPENSION** \$ _____

Independent front suspension shall be proposed as an option.

B. **MOTOR** \$ _____
Cummins 500 horsepower engine with 500,000 mile warranty.

C. **FRONT BUMPER WARNING LIGHTS** \$ _____
Two (2) Whelen 64 Series LED alternating warning lights shall be installed in the front bumper

D. **AUTOMATIC TIRE CHAINS** \$ _____
Driver controlled "OnSpot" automatic tire chains shall be provided and installed on the rear drive axle.

E. **PAINTED ROLLUP DOORS** \$ _____
All rollup doors are to be painted red to match the body color.
Explain warranty.

F. **VOGEL LUBRICATION SYSTEM** \$ _____
Model

G. **WILBURT LIGHT TOWER** \$ _____
Four (4) light head light tower model NS6-3000 light tower Dualtilt

H. **FOAM SYSTEM** \$ _____
Foam system with manifold capable of flowing two (2) 2 1/2" and two (2) 1 3/4" lines, electrically metered and proportioned. Capable of flowing both A & B foam. Foam Tanks to be 80 gallons B foam and 20 gallons A foam.

I. **PUMP** \$ _____
2000 GPM Waterous two-stage pump