



REQUEST FOR BIDS

The City of Maplewood, Missouri, is seeking bids for the purchase of:

ONE (1) REAR MOUNT FIRE PUMPER APPARATUS

▼
All bids must be submitted on the City of Maplewood's Specification and Bid Proposal forms. Forms are available at the Maplewood City Hall, Monday thru Friday 08:30 a.m. to 5:00 p.m. Bid forms are also available at www.cityofmaplewood.com/bid.

All bids must be addressed and submitted to the City of Maplewood Fire Department, 7601 Manchester Road, Maplewood, Missouri 63143 by 3:00 P.M. September 26, 2019. Bid opening will be held at that time at Maplewood City Hall.

The City reserves the right to waive irregularities and reject any and all bids or to hold bids for sixty (60) days, and to award the bid in the best interest of the City.

For questions about receiving a Specification and Bid Proposal packet please contact Karen Scheidt at k-scheidt@cityofmaplewood.com or 314-646-3604 or Terry Merrell at t-merrell@cityofmaplewood.com or 314-646-3613.

Terry J. Merrell
Fire Chief

Note: Advertised in the August 30, 2019 edition of the St. Louis Business Journal.

CITY OF MAPLEWOOD
CONDITIONS OF BIDDING

August 30, 2019

1. Sealed bids, so marked on the envelope, will be received by the City of Maplewood, 7601 Manchester Road, Maplewood, Missouri 63143, until the date and time written in the specifications.
2. Each proposal shall be made on the attached Specification and Bid Proposal Form which will be signed with the full name of each proprietorship, partnership or corporation submitting the same. The bid of proprietorship shall be signed by the owner; a partnership by one of the general partners; a corporation by a duly authorized officer thereof stating his title. The complete mailing address must be stated.
3. In bidding, the bidder agrees to enter into a contract or, at the option of the City, accept a purchase order for the purchase of the vehicle, equipment, and all other aspects of accepted contract.
4. Delivery will be within 420 days of awarding of contract. For every day delivery is delayed beyond 420 days there will be a \$100 per day late fee assessed and deducted from the contract purchase price.
5. Payment will be made in full within thirty (30) days after delivery of the vehicle, provided it is in conformity with the specifications.
6. Bidder agrees to comply with any federal, state, county or local regulations required for installation of equipment.
7. Bids must be submitted in a sealed envelope marked in accordance with the instructions included in the specifications.
8. The City reserves the right to reject any or all bids, waive irregularities or to hold all bids as noted in the Specifications and Bid Proposal Form, and to award the bid in the best interest of the City.
9. Specifications listed herein are intended to specify by performance and function. No specification should be construed as representing a particular manufacturer of vehicle. Bidders should propose to furnish equipment that comes closest to meeting the details of the specifications. Where proposed deviations in the Bidder's Proposal Form are noted, the bidder must state why the deviation will render equivalent reliability or performance. Failure to detail all such deviations will provide a basis for rejection of the entire proposal. At the same time, inclusions or exclusions of certain specifications is not for the purpose of defining, narrowing, or excluding acceptable equipment by a single manufacturer.

CITY OF MAPLEWOOD (FIRE DEPARTMENT)

BID PROPOSAL FOR (1) REAR MOUNT FIRE PUMPER APPARATUS PER SPECS.

- 1. APPARATUS \$ _____
- 2. APPROXIMATE DELIVERY TIME: _____ DAYS

In submitting this bid I understand the City of Maplewood, Missouri reserves the right to waive irregularities, reject any or all bids, or to hold all bids for up to sixty (60) days from the bid deadline stated below, and to award the bid in the best interest of the City.

The City is exempt from all sales tax, etc.

Bidder shall complete every space in the BIDDERS PROPOSAL response area by indicating whether the items bid are as specified (Yes/No) or equivalent (Yes/No). If bidding items which are determined by the bidder to be equivalent, a written response must be attached which indicates how/why the item is equivalent to the stated specifications. Bidder shall supply documentation listing the full specifications of all equipment included in the bid proposal.

PURPOSE:

The purpose of this document is to provide minimum specifications for the equipment that meets the needs and desires of this agency.

INTENT:

The intent of this specification is to obtain equipment at the lowest possible price commensurate with required quality standards. Experimental, prototype, or used equipment will not be accepted.

I understand that this bid **MUST BE SUBMITTED ON OR BEFORE SEPTEMBER 26, 2019, 3:00 p.m.** in a **SEALED ENVELOPE** Clearly marked, "APPARATUS BID."

Bid Submitted by:

Signature & Title _____ Firm/Company Name _____

Address with Zip Code _____

Telephone Number _____ Email address: _____

SEAL (If bid by a Corporation)

Date _____

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis and body being fabricated and assembled on the bidder's premises. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body and chassis). The bidder shall provide evidence that they comply with this requirement

Y__N__

LIABILITY

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

Y__N__

COMMERCIAL GENERAL LIABILITY INSURANCE

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

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

Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage. The policy shall include owner as an additional insured as their interest may appear.

The required limits can be provided by one or more policies provided all other insurance requirements are met.

Coverage shall be provided by a carrier(s) rated "Excellent" by A.M. Best Company.

Y__N__

UMBRELLA/EXCESS LIABILITY INSURANCE

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

Aggregate:	\$25,000,000
Each Occurrence:	\$25,000,000

The policy shall be written on an occurrence basis and at a minimum provide the same

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coverage's as Bidder's General Liability, Automobile Liability and Employer's Liability policies. Owner shall be included as an additional insured on the General Liability and Automobile Liability policies as their interest may appear. The required limits can be provided by one or more policies provided all other insurance requirements are met.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverage listed above along with its bid. The certificate shall be made out to the purchaser and be an original, no photocopies shall be accepted. The Certificate of Insurance shall provide that owner be given 30 days advance notice of cancellation, nonrenewal or material change in coverage.

Y__N__

BID BOND

All bidders shall provide a bid bond as security for the bid in the form of a 10% bid bond, to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language which assures that the bidder/principal shall give a bond or bonds, as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract. The bidder's bonded warranty shall include the chassis and body.

Y__N__

PERFORMANCE BOND

A performance bond shall not be included. If requested, the following shall apply:

The successful bidder shall provide, within 30 days after award of contract, and along with a signed copy of the contract, a performance bond, which guarantees performance of all terms and conditions of the contract and of the Basic One (1) Year Limited Warranty Agreement. The performance bond shall specifically cover the performance of the contract according to its terms and conditions, as well as payment of all related bills and encumbrances. This performance bond shall be issued by a surety company who is listed by the U.S. Treasury Department's list of approved sureties, as published at the time of the bid date. The performance bond shall be issued in an amount equal to 100% of the contract amount and shall be dated concurrent to, or subsequent to, the date of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment, or accessory that is incorporated into or attached to the In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.

Y__N__

FINANCING PROPOSAL

A lease purchase provision will be provided by the bidder. The City of Maplewood may elect to purchase the herein specified pumper under a "Lease Purchase" arrangement. Bidder is requested to provide along with the bid proposal a seventy-two (72) month lease purchase plan. Such proposal shall set forth in sufficient detail, but not be limited to:

1. Complete mailing address, phone number, and name of contact person for the financial institution, if different from bidder, with whom the City would enter into a contract for said Lease-Purchase arrangement.
2. Complete terms of Lease-Purchase arrangement. This would include, but need not be limited to, interest rate, payment schedule options, "down payment" requirements, "Pre-payment" options/penalties, etc.
3. A statement indicating the duration / amount of time from the date of the proposal for which the terms and conditions of the Lease-Purchase will remain in effect.

Y__N__

NFPA STANDARDS

This unit must comply with the NFPA standards in effect at the time the bid is submitted.

Y__N__

ISO COMPLIANCE

The manufacturer shall operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the "International Organization for Standardization (ISO)" specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance shall be included with the bid.

Y__N__

APPROVAL DRAWING

A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.

Y__N__

QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units which require periodic maintenance, ease of operation and symmetrical proportions. Construction shall be rugged and

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ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under "Performance Tests and Requirements". Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of any component part for service or repair. All steel welding shall follow American Welding Society D1.1-96 recommendations for structural steel welding. All aluminum welding shall be done to American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum. Flux core arc welding shall use alloy rods, type 7000, American Welding Society standards A5.20-E70T1. The manufacturer is required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Y__N__

DELIVERY

Apparatus, to insure proper break in of all components while still under warranty, shall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered. All expenses shall be covered by the dealer/factory.

Y__N__

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, and filter numbers.

Y__N__

PERFORMANCE TESTS AND REQUIREMENTS

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

Y__N__

DELIVERY

The apparatus must be delivered under its own power by the local dealer or factory representative to the city of Maplewood. All expenses shall be on the dealer/factory.

Y__N__

INSPECTION TRIPS

There shall be two (2) inspection trips included in the apparatus bid. The manufacturer shall provide air fare, lodging, meal expenses, rental car, and all expenses paid on each trip.

Y__N__

ORIENTATION

A factory trained representative shall conduct orientation on the new apparatus for three (3) shift days.

Y__N__

CLARIFICATION

We understand that not all manufacturers build trucks that may match this specification exactly. However, it is expected that each manufacturer will bid their “best” cab and body which they produce. The following list of items are REQUIREMENTS that must be included in your bid. If you do not bid the items listed below, your bid will be rejected.

1. Custom Cab with at least a 16” Raised Roof & minimum 70” from center of front axle to back of the cab.
2. Independent Front Suspension
3. 450hp Engine
4. Multiplexed Electrical System
5. Rear Mount Pump w/Drivers Side Rear Compartment Pump Panel
6. Class A Foam System
7. 500 Gallons of Water
8. Through the tank ladders
9. Rear Body/Rear Bumper Pre-Connected Hose Lines
10. Generator or Battery Idle Reduction Technology

Y__N__

OVERALL HEIGHT

The max overall height shall not exceed 11’

Y__N__

OVERALL LENGTH

The max overall length shall not exceed 35’

Y__N__

WHEELBASE

The max wheelbase shall not exceed 205”

Y__N__

ANGLE OF APPROACH

The angle of approach for the apparatus shall not be less than eight (8) degrees as specified by the current edition of NFPA 1901. - No exceptions permitted.

Y__N__

ANGLE OF DEPARTURE

The angle of departure for the apparatus shall not be less than eight (8) degrees as specified by the current edition of NFPA 1901. - No exceptions permitted

WARRANTIES

The following minimum warranty requirements shall be included in the vendors packet.

- One (1) Year Bumper to Bumper Entire Truck
- Five (5) Year Cab Paint
- Ten (10) Year Cab Structural
- Ten (10) Year Body Paint
- Five (5) Year Fire Pump
- Ten (10) Year Stainless Steel Plumbing
- Five (5) Year Wiring
- LIFETIME Body Structural
- LIFETIME Body Subframe

Any warranties not listed above shall be covered by the individual components warranty.

Y__N__

LOCAL SERVICE REQUIREMENTS

Each bidder shall provide detail on their local service facilities. Bidder must provide service within a 50-mile radius to the City of Maplewood.

Service providers must have the following:

- Mobile Service with “Service Trucks”
- In House Service
- Pump Testing Capabilities On Site
- Collision repair capabilities
- Factory Authorized Service Technicians

Y__N__

CAB CUSTOM STYLE

The cab shall be a custom, cab over engine style, with the driver and officer positions ahead of the engine and front axle. The cab shall be specifically designed and manufactured for the fire service industry.

The cab shall be designed by manufacturers to meet the unique, heavy-duty construction specifications. The raw cab will be fabricated to meet the exacting demand of the fire industry and shall be manufactured by a company with no less than 20 years of experience in building custom cabs whom have been actively engaged in building custom cabs for the previous 20 years. All aspects of the cab will be quality checked by manufacturer’s personnel. All cab and chassis customization and assembly will take place on the manufacturer’s premises.

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The cab shall be of a totally enclosed full tilt design, with the interior area completely open to improve visibility and verbal communication between the occupants. The cab shall be capable of tilting 45-degrees, allowing the chassis engine to be removed, if required, without tilting the cab beyond 45-degrees.

The cab shall include a four (4)-point rubber isolated cab pivot and mounting system. The rear histic mounts shall be isolated from the chassis frame to reduce the transfer of road vibrations and frame torque into the cab, while providing superior handling characteristics. No solid mounted rear lock downs shall be acceptable.

The front cab pivot assemblies shall be 1/2" A36 steel plate with a .31" thick 2-1/2" diameter tube cross member mechanically attached to the cab and frame. There shall be two (2) greaseable rubber isolated engineered bushings to reduce the transfer of road vibrations into the cab.

The cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

The cab super-structure shall be designed with high strength 6061-T6 aluminum extrusions and 3/16" 5052-H32 aluminum plate. This shall include the "A", "B", "C" and "D" extruded pillars, triple wall front end reinforced by 3/16" thick x 2"x3" extrusion tubes, 3/16" side walls and rear wall. This shall offer superior occupant protection in the event of vehicle impact.

The extrusions shall provide adequate space for routing of wiring and hoses which will provide service accessibility. Routing of harnessing which requires pulling of wires through tubes will not be allowed.

The "A" pillar shall be of a closed section, one-piece extrusion extending from the cab header to the bottom of the cab. This design shall ensure strength and superior resistance to buckling in the event of a frontal impact.

The cabs front corners shall be constructed of 5052-H32 stamped aluminum to provide a consistent material composition. The stamping process alleviates the high tendency of fractures through the fusing of dissimilar metal composition as appears with a casting process.

Cast cab components, including cab corners, "A" pillars and front fascia components shall not be acceptable due to the high tendency of fractures.

Additional cab strength shall be obtained through closed section, dual extrusions in the construction of the "D" pillars.

The front facade shall be constructed with dual wall .19" thick 5052-H32 aluminum plates which make up the front bulkhead, reinforced by .19" thick 6061-T6 aluminum extrusion (box-sections), though-out the inner and outer perimeter of the front end / facade. The reinforcing

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third wall / barrier is .13" thick 5052-H32 work hardened aluminum facade panels. All panels shall be welded, no adhesive.

The cab side wall of the cab shall be 3/16" thick 5052-H32 aluminum plate. The cab side plate shall wrap the corner of the cab B pillar and slam post. The cab rear wall plates shall be reinforced with a minimum of two (2) 3/16 x 3" aluminum sections; the cab side reinforcements shall be a minimum of 28" apart and span from the cab B pillar and cab C pillar.

The rear wall of the cab shall be 3/16" thick 5052-H32 aluminum plate. The rear cab plate shall wrap the corner of the cab and attach to the cab D pillar and slam post. The cab rear wall plates shall be reinforced with four horizontal and dual vertical support sections; the dual vertical support structure shall consist of 1/8" thick x 2" 6061-T6 aluminum tubes and the horizontal hat sections shall consist of 1/8" thick x 4" 5052-H32 aluminum. The dual vertical support sections shall be 40" apart, and the cab shall contain a minimum of four (4) 4" hat section horizontal supports.

Additionally, the rear edge of the floor shall include a 3/16" 6061-T6 aluminum tube extrusion (under the floor) and a 7" 5052-H32 aluminum cab floor support section (above the floor)

The outside cab width shall measure 99" across. The interior cab shall have a width of 93".

The cab length shall measure 77.3" from the center of the front axle to the front cab skin and 78" from center of the front axle to the back of the cab, for a total cab length of 155.3".

The cab shall also feature ample driver and officer foot room, a total of 3.7 square feet for the driver and 4.45 square feet of floor space at the officer's feet.

The crew floor shall feature a complete flat floor design, including provisions for a one o'clock PTO inclusion, while still offering an uninterrupted 25 total square feet of space.

The leading edge of the cab floor from the steps shall meet NFPA 15.7.4 slip resistance requirements on both the front and rear cab doors. .

The cab shall meet or exceed cab impact test (SAE J-2420, cab rollover test (SAE J2422), and cab seating requirements (FMVSS 210, and FMVSS 208).

The cab shall include 4 doors. They shall have a front two (2) cab doors shall have a minimum clear opening of 42.5" wide by 81" high measured from the top of the lower cab step to the top of the door opening.; and the rear two (2) crew doors shall be a minimum clear door opening of 38.5" wide by 98.5" high measured from the top of the lower cab step to the top of the door opening. The length of the door will vary depending on door type.

Y___N___

ROOF STYLE - 18" RAISED

The cab roof design shall incorporate an angled front roof, transitioning into a rolled extrusion for a swept back design.

The roof height shall feature an 18" raise starting over the driver and officer positions and continuing back to the roof and rear wall joint. Raised roof designs that do not include a raised portion over the driver and officer positions will not be acceptable.

The roof of the cab shall feature dual .25" thick interlocked structural member extrusions running the entire width of the cab defending against buckling in the event of a rollover.

The cab header shall feature dual 6061-T6 aluminum extrusions which shall offer superior rigidity and strength.

The raised roof shall offer a crew head height area of 72-1/2" from the floor to the ceiling in the crew areas for optimum headroom.

The crew roof super structure shall include a reinforcement hat-section structure 1/8" thick 5052-H32 aluminum bracing. The for-aft support braces will be 24" on center apart, the side to side support braces will stretch from cab side to cab side and centered between the dual 3/16" extruded and plate reinforced roll-cage section.

The forward cab roof section shall include a combination of 1/8" 6061-T6 extruded tube reinforcements and a hat-section structure 1/8" thick 5052-H32 aluminum bracing. The bracing shall wrap the entire perimeter of the cab forward roof, and the condenser support structure.

The condenser support structure shall include 1/8" triple sections, supporting the outer perimeter and center of the condenser mounting pad.

Additionally, the entire roof super structure is reinforced by a .25" thick roof edge corner extrusion around the entire cab perimeter.

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

Y__N__

DRIVER SIDE EMS COMPARTMENT

The driver side of the cab shall feature a compartment which is designed for housing emergency medical equipment. The compartment shall be located immediately behind the driver's seat and the interior shall measure 23"wide x 26" tall x 24" deep.

- The compartment shall feature an opening on the exterior and interior of the cab.
- The compartment shall have a minimum of 8 cubic feet of storage.

Y__N__

DRIVER SIDE EMS COMPARTMENT – Exterior Hinged Door

The EMS compartment shall feature:

- A hinged box pan style exterior compartment door
- A hidden, piano style stainless-steel door hinge which shall be mounted inside the panel of the door prohibiting dirt and debris from becoming trapped in the hinge.
- A clear door opening of approximately 17.5" wide x approximately 25.5" tall
- The door shall open as far as possible without contacting the side of the cab or interfere with the opening or closing of the driver's door.
- The compartment floor shall be a sweep out design

Y__N__

EMS COMPARTMENT HANDLE

The EMS compartment handle shall be a die cast steel, black door handle.

Y__N__

EMS COMPARTMENT LOCKS

The door handle shall include an integral manual door lock, which may be unlocked from the exterior with a key.

Y__N__

DRIVER EMS COMPARTMENT INTERIOR FINISH

The interior of the driver side EMS compartment shall be finished with the same product and color as the cab coating.

Y__N__

DRIVER EMS CAB COMPARTMENT LIGHTING

The driver's side EMS compartment shall include one (1) 18" strip of LED lighting and shall be located in the inside front corner of the compartment near the door.

Y__N__

OFFICER SIDE EMS COMPARTMENT

The officer side of the cab shall feature a compartment which is designed for housing emergency medical equipment. The compartment shall be located immediately behind the officer's seat and the interior shall measure 18.5" wide x 26" tall x 23" deep.

- The compartment shall feature an opening on the exterior and/or interior of the cab.
- The compartment shall have a minimum of 6 cubic feet of storage.

Y__N__

OFFICER SIDE EMS COMPARTMENT – Exterior Hinged Door

The EMS compartment shall feature:

- A hinged box pan style exterior compartment door
- A hidden, piano style stainless-steel door hinge which shall be mounted inside the panel of the door prohibiting dirt and debris from becoming trapped in the hinge.
- A clear door opening of approximately 14.5" wide x approximately 25.5" tall
- The door shall open as far as possible without contacting the side of the cab or interfere with the opening or closing of the officer's door.
- The compartment floor shall be a sweep out design

Y__N__

EMS COMPARTMENT HANDLE

The EMS compartment handle shall be a die cast steel, black door handle.

Y__N__

EMS COMPARTMENT LOCKS

The door handle shall include an integral manual door lock, which may be unlocked from the exterior with a key.

Y__N__

OFFICER EMS COMPARTMENT INTERIOR FINISH

The interior of the officer side EMS compartment shall be finished with the same product and color as the cab coating.

Y__N__

OFFICER EMS CAB COMPARTMENT LIGHTING

The officer's side EMS compartment shall include one (1) 18" strip of LED lighting and shall be located in the inside front corner of the compartment near the door.

Y__N__

DRIVER SIDE REAR CAB COMPARTMENT

The driver side of the cab shall feature a compartment which shall be located at the rear of the cab behind the driver's side crew door. The compartment shall measure 17"wide x 37" tall x 22" deep the compartment shall feature:

- A hinged box pan style exterior compartment door
- A hidden, piano style stainless-steel door hinge which shall be mounted inside the panel of the door prohibiting dirt and debris from becoming trapped in the hinge
- A clear door opening of 16" wide and 37" tall

Y__N__

TRANSVERSE REAR COMPARTMENT

The driver side rear compartment shall be transverse above the frame rails, creating a larger compartment from one compartment to the other.

The compartment shall have a door opening that is 37" high by 16.25" wide.

The lower sections of the compartment shall have the following dimensions. It shall be 22.25" deep and 27" high.

The upper section shall be 10.375" high and 93.75" long and a minimum of 16.25" wide.

Y__N__

DRIVER EXTERIOR REAR COMPARTMENT HANDLE

The Driver's exterior rear compartment shall have a black die cast steel handle.

Y__N__

REAR CAB COMPARTMENT DOOR LOCKS

The driver side rear cab compartment shall include a manual door lock. The door lock shall be an integral part of the compartment handle. The door may be unlocked from the exterior with a key.

Y__N__

DRIVER REAR COMPARTMENT INTERIOR FINISH

The interior of the driver side rear compartment shall be finished with the same product and color as the cab coating.

Y__N__

DRIVER REAR CAB COMPARTMENT LIGHTING

The driver's side rear compartment shall include one (1) 18" strip of LED lighting and shall be located in the inside front corner of the compartment near the door

Y__N__

OFFICER SIDE REAR CAB COMPARTMENT

The officer side of the cab shall feature a compartment which shall be located at the rear of the cab behind the officer's side crew door. The compartment shall measure 17" wide x 37" tall x 22" deep the compartment shall feature:

- A hinged box pan style exterior compartment door
- A hidden, piano style stainless-steel door hinge which shall be mounted inside the panel of the door prohibiting dirt and debris from becoming trapped in the hinge
- A clear door opening of 16" wide x 37" tall
- The compartment shall be of a sweep out design.

Y__N__

TRANSVERSE REAR COMPARTMENT

The driver side rear compartment shall be transverse above the frame rails, creating a larger compartment from one compartment to the other.

The compartment shall have a door opening that is 37" high by 16.25" wide.

The lower sections of the compartment shall have the following dimensions. It shall be 22.25" deep and 27" high.

The upper section shall be 10.375" high and 93.75" long and a minimum of 16.25" wide.

Y__N__

OFFICER EXTERIOR REAR COMPARTMENT HANDLE

The Officer's exterior rear compartment shall have a black die cast steel handle.

Y__N__

REAR CAB COMPARTMENT DOOR LOCKS

The officer side rear cab compartment shall include a manual door lock. The door lock shall be an integral part of the compartment handle. The door may be unlocked from the exterior with a key.

Y__N__

OFFICER REAR COMPARTMENT INTERIOR FINISH

The interior of the officer side rear compartment shall be finished with the same product and color as the cab coating.

Y__N__

OFFICER REAR CAB COMPARTMENT LIGHTING

The officer's side rear compartment shall include one (1) 18" strip of LED lighting and shall be located in the inside front corner of the compartment near the door.

Y__N__

CAB DOORS

The cab shall include a total of four (4) doors, two (2) forward and two (2) rear crew doors.

The forward cab doors shall be a minimum of 45" wide and have a cab structure opening of 42.5" wide; and the rear crew doors shall be a minimum of 41" wide, and a cab structure opening of 38.5" wide to provide enhanced entry and egress of the cab.

Each cab door shall feature:

- Superior strength and rigidity from 3/16" closed section extruded door frames
- Damping inside each door for a solid feel and minimized reverberation when closed
- A rolled rubber bulb seal style gasket shall be utilized around the door ensuring a weather tight fit
- Integrated, mechanical door stop
- A full length, hidden piano style 10-gauge stainless steel door hinge with a 1/4" pin, which shall be mounted inside the panel of the door prohibiting dirt and debris from becoming trapped in the hinge
- An integrated one-piece inner door assembly that includes a glass track, mounting provisions for window regulator, door handle and door panel shall be utilized. The inner door assembly shall be easily removed with nut inserts. Self-tapping screws shall not be acceptable.

Y__N__

CAB STEPS

The cab steps shall meet NFPA 13-7.3 in size and slip resistance requirements.

The cab shall incorporate a two-step design at each door, with a first step height of approximately 22" from the ground. The leading edge of the first step shall be 5" further outboard than the second step to provide a staircase design for safer egress.

The front cab first step shall measure a minimum of 33" wide x 10" deep. The front cab intermediate step shall measure a minimum 31" wide x 8" deep.

The crew cab first step shall measure a minimum of 26" wide x 10" deep. The crew cab intermediate step shall measure a minimum 28" wide x 9" deep.

The top crew step shall incorporate an angle approximately midway from the rear wall to the crew door hinge extending out the flooring under the rear facing outer seat positions, offering foot placement for safety while seated in this position.

CAB STEP TRIM

The cab steps shall include a 12-gauge 304 grip strut stainless steel construction on the first step, the step closest to the ground. The stainless-steel finish shall be a number 7 mirror. The step shall include a frame which is integral with the construction of the cab for rigidity and strength. The grip strut shall allow water and other debris to flow through rather than becoming packed under the step. The middle step shall be integral with the cab in construction and shall be trimmed in 3003-H22 embossed aluminum tread plate which is 0.084" thick.

Y__N__

FULL LENGTH DOORS

All doors shall be full length from the roof of the cab extending down to cover and protect the entrance step areas.

Y__N__

DOOR HANDLES

The exterior door handles shall be constructed of die-cast steel. They shall feature heavy duty pull style handles which are extended out and suitable for easy grasping with a gloved hand.

The handles shall be complimentary to the cab exterior and shall be black in color.

The interior door handle shall be a paddle style which shall be chrome in color. The paddle shall be hinged towards the rear of the cab.

Y__N__

CAB DOOR LOCKS

All cab doors shall include manual door locks with keys. The door lock shall include a toggle and shall be an integral part of the interior door handle which is red in color. The exterior door lock is integral with the door latch. The cab doors may be unlocked from the exterior with a key or through a thumb turn from inside the cab.

Y__N__

INTERIOR CAB DOORS

All cab doors shall consist of a one-piece formed and stamped aluminum interior panel. The panel shall include a formed collar around the interior door latch. The door panels shall be attached to the door with nutserts. ABS material shall not be acceptable.

Y__N__

INTERIOR CAB DOOR FINISH

All cab doors shall be finished with Line-X bed liner coating for durability. The finish shall be black in color.

Y__N__

INTERIOR FRONT DOOR PULL

The interior driver and officer cab doors shall each include one (1) customized cast aluminum single piece door grab pull designed specifically for the fire service.

The single piece door pull shall have a curved designed in an “L” formation to provide multiple points for grasping with a gloved hand. The horizontal dimension shall be a minimum of 28" and the vertical dimension shall be a minimum of 20". The door pulls shall have an ergonomic curve making them easier to grasp when entering and exiting the cab.

The door pull shall feature secure mounting in three separate locations of the pull utilizing Stainless-steel fasteners with nut inserts in each location. Self-tapping screws or other mounting techniques shall not be allowed for interior door pulls or grab handles.

Each handle shall be constructed of A356 aluminum casting and shall feature a red powder coated finish.

Y__N__

INTERIOR GRAB HANDLE REAR DOOR

A red powder coated cast aluminum grab handle shall be provided on the inside of each rear crew door. The handle shall extend horizontally the width of the window just above the windowsill. The handle shall assist with entry and egress from the crew area of the vehicle.

The interior driver and officer rear cab crew doors shall include one (1) customized cast aluminum single piece door grab pulls designed specifically for the fire service.

The door pull shall have an ergonomic curve making them easier to grasp when entering and exiting the cab.

The door pull shall feature secure mounting with stainless-steel fasteners with nut inserts in each location. Self-tapping screws or other mounting techniques shall not be allowed for interior door pulls or grab handles.

Each handle shall be constructed of A356 aluminum casting and shall feature a red powder coated finish.

Y__N__

WINDSHIELD

A one (1)-piece, safety glass full width windshield with more than 3,228 square inches of area will be provided.

The windshield shall feature:

- A completely uninterrupted view from both the driver and officer positions

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- The windshield will consist of three (3) layers; the outer layer, the middle safety laminate, and the inner layer. The .114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage.
- Economical replacement readily available from auto glass supplier
- Easily removable for replacement using standard automotive techniques
- A frit band will be provided along with an outer trim seal on the outside perimeter of the windshield for a finished automotive appearance.

Y__N__

WINDSHIELD WIPER SYSTEM

A single windshield wiper system shall be incorporated in conformance with FMVSS and SAE requirements. Two (2) 22" windshield wiper arms shall be mounted below the windshield. Each arm shall include a 26" long wiper to provide optimum windshield clearing.

The windshield wiper fluid reservoir can be filled without raising the cab.

Y__N__

WINDSHIELD WIPER ACTIVATION

The windshield wipers shall be activated through a switch on the driver's panel, with intermittent control.

Y__N__

DRIVER WINDOW

The driver's door shall include a window which measures a minimum 25.5" wide x 21" high with a minimum clear viewing area of 694 square inches. The glass shall include a 50% dark tint and through a powered operation shall completely roll into the door housing.

Both windows shall be trimmed in a black anodized aluminum ring and rubber seal to prevent water from entering the cab when closed.

Y__N__

POWER WINDOW SWITCHES

The driver shall have switches for each of the cab door windows. The powered windows of the officer door, and each respective crew door, shall be activated by a switch on the respective door.

The switches for the driver and officer door windows shall be located in a customized door grab handle.

Y__N__

OFFICER WINDOW

The officer's door shall include a window which measures 25.5" wide x 21" high with a minimum clear viewing area of 694 square inches. The glass shall include a 50% dark tint and through a powered operation shall completely roll into the door housing.

Both windows shall be trimmed in a black anodized aluminum ring and rubber seal to prevent water from entering the cab when closed.

Y__N__

REAR DRIVER SIDE WINDOW

The rear driver's side door shall include a window which is 26.75" wide x 21.75" high with a minimum clear viewable area of 581 square inches. The glass shall include a 50% dark tint and through power actuation shall roll completely into the door housing. The power window shall be activated through a switch located on the top of the door panel.

Y__N__

REAR OFFICER SIDE WINDOW

The rear officer's side crew door shall include a window measuring 26.75" wide x 21.75" high with a minimum clear viewable area of 581 square inches. The glass shall include a 50% dark tint and through powered actuation shall roll completely into the door housing. The power window shall be activated through a switch located on the top of the door panel.

Y__N__

DRIVER MIDDLE WINDOW

The cab shall include a fixed driver's side window glass which shall be located between the cab front and rear doors. The glass shall be 17.5" wide x 12.5" high and shall include a 50% dark tint and shall be trimmed in a black anodized rubber ring for a tight seal when closed.

Y__N__

OFFICER MIDDLE WINDOW

The cab shall include a fixed officer's side window glass which shall be located between the cab front and rear doors. The glass shall be 17.5" wide x 12.5" high and shall include a 50% dark tint and shall be trimmed in a black anodized rubber ring for a tight seal when closed.

Y__N__

DRIVER REAR CAB WINDOW

The cab shall include a fixed driver's side window which shall be located at the rear of the cab behind the rear doors. The glass shall include a 50% dark tint and shall be trimmed in a black anodized rubber ring for a tight seal when closed.

Y__N__

OFFICER REAR CAB WINDOW

The cab shall include a fixed officer's side window which shall be located at the rear of the cab behind the rear doors. The glass shall include a 50% dark gray tint and shall be trimmed in a black anodized rubber ring for a tight seal when closed.

Y__N__

GLASS UPPER SIDE REAR DOOR

Windows shall be provided in the upper portion of each rear door of the raised roof cab. Each window shall measure 27.00 inches wide and 11.00 inches high and be installed above the lower door window. The windows shall be rectangular in shape and fixed within this space. The windows shall have a 50% dark tint and be mounted using black self-locking window rubber.

Y__N__

CAB INSULATION

The cab shall be insulated from road and vehicle resonance, exterior sound and thermal intrusion.

The cab insulation system shall be comprised of three separate components each designed to assure optimal thermal and acoustic properties are achieved. Two layers of insulation material shall be utilized.

A minimum of .8” of SCbond Polyurethane Foam insulation shall be applied as an additional insulation between the cab skin and all interior ceiling surfaces. The insulation shall have a density of 10 lb/ft³ +/- .5 providing better thermal properties and acoustic reduction properties.

A layer of 1/8” barrier bubble film laminated between two layers of reflective metalized film shall be provided in the roof to minimize the effects of radiant heat. The barrier shall be mold and mildew resistant and have a Class A/Class 1 fire rating. The barrier shall have a minimum of a R-5.6 rating.

The interior cab insulation system shall meet NFPA 1901 14.1.6 standards and ensure that no seated position within the cab exceeds 90dB. This decibel rating shall be measured with the apparatus traveling 45 mph with climate control settings off.

All insulation used in the construction of the cab shall be marine grade featuring longevity and resistance to degradation.

The interior of the cab including the rear wall, side walls and ceiling panels shall be insulated.

Use of open cell material as the primary insulation will not be acceptable.

Y__N__

ENGINE TUNNEL INSULATION

The engine tunnel shall include an insulated barrier from noise on the underside of each tunnel surface. This barrier shall be engineered for surrounding engines.

The insulation barrier shall provide an acceptable decibel level within the cab meeting or exceeding the recommendations of NFPA 1901.

The thickness of the engine tunnel insulation shall be 1" thick. The insulating material shall be open cell polyether-based foam with a textured surface, specifically designed for acoustic absorption.

Use of aluminized faced material on the engine tunnel shall not be acceptable.

The engine tunnel insulation shall be precisely cut and sealed to fit each segment on the underside of the tunnel surface. The insulation shall then be affixed by a pressure sensitive adhesive.

The insulation shall meet or exceed FMVSS 302 flammability testing.

Y__N__

CAB UNDERBODY INSULATION

The underside of the cab shall include at a minimum of 1" of a Uni-seal Cab-Foam insulation offering reducing vibration noise and thermal effect to the interior of the cab.

Y__N__

DAMPING INSULATION

The entire cab, including the ceiling and walls shall include additional insulation reducing structure borne noise from vibration, impact and resonance within the cab.

Y__N__

REAR WALL INTERIOR MATERIAL

The rear wall of the cab shall be covered in black 31 oz. marine grade vinyl for a more pleasing appearance.

Y__N__

INTERIOR TRIM MATERIAL

The interior trim shall feature a 31 oz. marine grade vinyl which features a tensile strength of ASTM D751 of excellent, tear strength meeting the Federal standard 191-5134 of excellent and shall be oil resistant passing the CID-A-A-2950A requirement for no permeation.

Due to the excellent qualities of the marine grade vinyl material, no other type of interior trim shall be acceptable.

The soft trim vinyl shall feature mildew resistance passing ASTM G21-90 and shall be rated to -25 degrees Fahrenheit.

The vinyl shall be flame retardant meeting California Fire Code 117, UFAC Class 1, and BIFMA Class 1 and shall have a high resistance to abrasion.

The interior of the cab side wall soft trim shall be black in color and the ceiling panel soft trim shall be gray in color.

Y__N__

THROTTLE AND BRAKE PEDALS

The apparatus shall have floor mounted throttle and brake pedals.

Y__N__

FLOOR MAT

The interior flooring of the cab shall be covered with an advanced black multi-layer acoustic dampening mat. The floor matting shall be an open/closed cell, flexible polyurethane polyamide material with frictional dampening and dissipation properties. The mat shall be a fire and skid resistant non-wicking material.

Y__N__

INTERIOR FLOOR COVERING

The entire floor of the cab shall be covered in Black Line-X coated aluminum.

Y__N__

SUN VISORS

The driver and officer seats shall feature a sun visor mounted in the header over each seating position. The sun visors shall be gray tinted plastic.

Y__N__

INTERIOR CAB FINISH

The interior cab shall be finished in a high-performance polyurethane coating including the interior A, B, C and D pillars, all occupant seat frames and any surrounding surfaces extending to the ball seal around each door. This type of coating shall feature:

- Durability, scratch, chemical and abrasion resistance
- Consistent, even coverage and a uniform texture
- Resistance from fading from exposure to UV light
- Gray in color

Y__N__

ENGINE TUNNEL

The distance from the back of the tunnel to the interior wall shall be 64" measured at floor level and 70" at top of engine tunnel.

Y__N__

ENGINE TUNNEL

The engine tunnel shall be constructed of aluminum offering superior durability in addition to thermal and acoustic resistance.

The tunnel shall feature a polyurethane coating which shall match the dash and header in texture and color for a consistent appearance and robust finish.

The engine tunnel shall feature:

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- A low-profile design measuring approximately 46.5" wide and 21.5" in height from the crew floor shall offer optimum visibility of the windshield and cab interior from any seated position.
- The engine tunnel at the driver's position shall be a tapered design, featuring 24" clear width at floor level, first taper shall start 16.5" from floor level and taper inward for a clear width of 26" and the final taper shall start at 21" from floor level and taper inward for a clear width of 33".
- The engine tunnel at the officer's position shall be a tapered design, featuring 23" clear width at floor level, first taper shall start 16.5" from floor level and taper inward for a clear width of 22.5" and the final taper shall start at 21" from floor level and taper inward for a clear width of 31.5".
- The design shall offer a minimum of 30" for the driver and 28.5" for the officer as measured from the inside door pan to the top edge of the tunnel. The dimension measured at the "H" (hip) point, with the seat in the lowest position, shall be a minimum of 28.5" for the driver and 27" for the officer.

Y__N__

CAB DASH

The cab dash shall offer heavy-duty, durable construction from formed aluminum. The cab dash shall be finished with an advanced polyurethane coating for a rugged finish.

The polyurethane finish shall provide a tough, flexible, impact-absorbing, chemical & abrasion-resistant, even-textured and skid-resistant surface. The polyurethane finish shall offer durability and scratch resistance even against today's advanced firefighting turnout materials with consistent, even coverage and a uniform texture. The polyurethane coating finish shall resist fading from UV light.

This construction shall allow for a clean, seamless dash area that shall reduce unnecessary joining of cab dash components. This design allows for the following features:

- Optimal heating and cooling of cab occupants, HVAC louvers shall be integrated into the gauge panel with a total of six (6) louvers; three louvers pointing at the driver and three louvers pointing at the officer.
- For improved safety cab switches and controls shall be ergonomically located within easy reach of the driver when in the seated position with seatbelts fastened. This design will reduce driver distraction and increase safety by putting frequently accessed driver controls within easy reach to allow the driver more time to focus on the road.
- The officer side cab dash shall house the three HVAC louvers on the officer side. This panel will also provide ergonomically located switches and controls for

the officer. All controls shall be within easy reach while in the seated position with seatbelts fastened.

- Access panels on the top of the dash for both the driver and officer sides easing maintenance access to controls, components and gauge assemblies
- The driver side dash shall include gauges for primary air pressure, secondary air pressure, a Pacific Insight instrumentation gauge panel and the DEF gauge as standard
- The driver side dash shall also include two (2) lower panels to the left and right of the steering column for FMVSS switches such as the Off/Ignition and start switches and the park brake assembly
- The dash shall include a provision for switches to the right of the Driver
- The officer dash shall include a flat area for optional mounting cradles or brackets for a laptop computer, mobile data terminal, map compartment or clip board
- The officer dash shall include a provision for switches to the left of the Officer

Y__N__

CAB DASH & ENGINE TUNNEL

The cab dash and the engine tunnel of the cab shall be coated with Line-X bed liner coating for a durable finish. The color shall be black.

Y__N__

MOBILE DATA TERMINAL PROVISION

The officer dash shall feature a mobile data terminal base which shall support a customer provided docking station for their laptop computer or a tablet and keyboard. This provision shall include a slide out which shall offer easy access and storing to the Officer.

Y__N__

CUP HOLDER

Two (2) cup holders shall be provided. There shall be one mounted on both the driver and officer side and shall be in the forward outer portion on the upper portion of the dash.

Y__N__

INSTRUMENTATION PANEL

The instrumentation panel inlay shall be powder coat black.

Y__N__

CAB HEADER

The cab header shall offer heavy duty, durable construction using resin transfer molding (RTM) technology formed composite material. The composite material shall be .28" thick for improved resistance and military type strength.

RTM is a low pressure, closed molding process which offers a dimensionally accurate and high-quality surface finish composite molding, using liquid thermoset polymers reinforced with various forms of fiber reinforcements. The matrix selection of polymer and reinforcement dictates molding mechanical and surface finish performance.

ABS polymer construction shall not be acceptable.

The cab header shall offer a finish of a polyurethane coating for a rugged design and finish.

The polyurethane finish shall provide a tough, flexible, impact-absorbing, chemical & abrasion-resistant, even-textured and skid-resistant surface. The polyurethane finish shall offer durability and scratch resistance even against today's advanced firefighting turnout materials with consistent, even coverage and a uniform texture. The polyurethane coating finish shall resist fading from UV light.

The cab header shall also be purpose built for integration of Fire/EMS components and ease of maintenance with panels above both the driver and officer positions measuring 8" wide x 15" long for mounting radios, aerial controls and switches.

Y__N__

HVAC HEATING AND COOLING SYSTEMS

The interior cab climate control shall be comprised of a triple system that shall include a defroster, a cab and crew heater and air conditioner for a complete HVAC system. The air conditioning system shall be comprised of compressor, condenser, and a minimum of three (3) evaporators to provide consistent temperature control throughout the entire cab.

The system shall be rated as an Emergency Vehicle grade for the use in Fire and Rescue style vehicles and shall provide environmental air treatment in accordance with published SAE standards.

The HVAC system shall be tested and certified by the component manufacturer and a third party independent certified testing laboratory, including all three systems. Documentation of test results shall be provided with the bid.

The HVAC system shall be a total and complete system, and shall provide sufficient defrosting, heating and cooling to the entire cab. The HVAC system shall meet or exceed all specified items without the use of auxiliary heating and cooling systems.

Y__N__

DEFROSTING SYSTEM

The defrosting system shall feature:

- Maximum defrost and heating performance, a 30,000 BTU heater-defroster unit with 718 CFM of air flow will be provided inside the cab.
- Easy access, a removable cover and strategic location under the center portion of the instrument panel.
- Six (6) vents which shall be located in the top forward portion of the dash for superior defrosting properties across the entire windshield.
- A system capable of clearing 90 percent or more of the windshield in fifteen (15) minutes or less after a three (3) hour cold soak at 0 degrees Fahrenheit (-17.78 degrees Celsius).
- A system that exceeds flash fogging standards that are set forth in the SAE heavy-duty cab with sleeper specifications. Documentation from a third-party testing facility shall be available upon request.
- An integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the one (1) piece windshield.

Y__N__

HEATING SYSTEM

The heating system shall feature:

- Delivery of a minimum of 82,000 BTU/hour of heat to the entire cab.
- Heat and air circulation shall be provided to the driver and officer foot area of the cab as standard through ducting in the foot well area of both positions.
- Substantial air movement and heating provided to the driver and officer's position, with six (6) adjustable louvers, located in the dash, three (3) adjustable louvers directed at the driver and three (3) adjustable louvers directed at the officer
- Dual overhead units, with five (5) adjustable louvers shall be mounted above the rear facing seat positions on the driver and officer side of the cab.
- A minimum of 880 CFM of air flow measured at the front seated positions and 1580 CFM of air flow per side in the rear seated positions for a combined total of 4040 CFM of air flow in the cab.

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- The heater shall be plumbed with a shut off valve at the engine, so that the coolant bypasses the heaters.

Y__N__

AIR CONDITIONING

The air conditioning system shall feature:

- A minimum of 96,000 BTU/hour of cooling capacity to the entire cab.
- One (1) evaporator shall be located under the center dash and Two (2) crew overhead evaporators located near the B-pillar on each side of the cab allowing for greater frontal visibility for the forward-facing crew seating and allowing for more interior mounting of accessories.
- A gravity condensation drain system shall be utilized. These drains shall remove all condensation from the evaporator units and direct it to the exterior of the chassis cab for optimal performance. Systems utilizing pumps to remove condensation, or gravity systems with poles or other obstructions located within the cab to route drains through shall not be acceptable.
- Substantial air movement for optimum cooling shall be provided to the driver and officer positions, with six (6) adjustable louvers, located in the dash, three (3) adjustable louvers shall be directed at the driver and three (3) adjustable louvers shall be directed at the officer
- The air condition system shall be capable of cooling the cab from 110 degrees Fahrenheit (43.33 degrees Celsius) to 70 degrees Fahrenheit (21.11 degrees Celsius) at 60% humidity in less than 30 minutes with an engine RPM of 1400; and cool the cab from 100 degrees Fahrenheit to 73 degrees Fahrenheit at 80% humidity, after a three (3) hour heat soak. A certification document from the testing facility shall be available upon request.

Proposals offering ceiling mounted evaporator units in the center of the cab above or on the engine tunnel shall not be accepted as this is a safety consideration due to the lack of visibility and communication within the cab.

Y__N__

CAB PAINT AIR CONDITIONING CONDENSER COVER

The air conditioning condenser cover shall be made out of aluminum and shall be painted to match the roof color. Plastic condenser covers will not be acceptable.

Y__N__

HEATER HOSE

The heater hose inside the cab for the HVAC system shall be premium silicone hose.

Y__N__

CONDENSER

The cab air conditioning system shall include one (1) low profile HE-condenser which shall be centered forward on the roof of the cab.

Y__N__

AUXILIARY DEFROSTER FANS

Two (2) each 6" diameter defrost fans integrated into the driver and officer header angled towards the windshield for improved air circulation.

Y__N__

AUXILIARY COOLANT HEATING SYSTEM

The auxiliary coolant heating system shall include a diesel fired Espar heater rated at 17,000 BTU. The auxiliary heater shall be plumbed into the HVAC and engine coolant system and will include an integrated pump to circulate coolant throughout the cooling system including the engine and heat exchangers.

The heater shall be automatically turn on when the coolant temperature is below 170 degrees Fahrenheit and the engine is running. The heater will automatically turn off once the coolant temperature reaches 170 degrees.

The auxiliary coolant heater shall be enclosed in a metal box and shall have a minimum two (2) year parts and labor warranty.

Y__N__

HEATING AND COOLING CONTROLS

The HVAC system shall be controlled through all available vistas, and the HVAC system for the crew area shall be controlled through a manual panel located in the crew area.

Y__N__

REAR CREW AREA CONTROLS – FORWARD FACING DRIVER’S SIDE

The controls for the crew area heat shall be mounted overhead, along the ceiling above the door on the driver’s or officer’s side of the cab.

Y__N__

SEAT AND SEAT BELT COLOR

This seat in the cab shall be black in color with a red seat belt.

Y__N__

DRIVER SEAT

The driver’s seat shall be a 911 Seats XL, air ride, wide series seat.

Standard features of this 10way Non SCBA 3pt ABTS (all belts to seats) include 108 degree recline, adjustable headrest, wide contoured back with 2 way adjustable lumbar. Electronic adjustments include fore/aft, up/down, front/rear tilt.

The seat shall feature an XL 21-inch-wide comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control); easing tailbone pressure, enhancing comfort and reducing vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity.

The seat(s) shall have a minimum 7-year manufactures warranty.

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

Y__N__

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3pt ABTS (all belts to seats). The seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

Y__N__

SEAT BACK

The seat back shall incorporate a standard style headrest.

Y__N__

SEAT MOUNTING DRIVER

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

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

Y__N__

SEAT MATERIAL

The seats shall include Turnout Tuff material; this urethane-coated denier nylon is water repellent to 75 PSI of water Pressure. Suitable for heavy duty applications, this cloth has a bursting strength of 300+ pounds per foot and surface abrasion of 1000+ cycles heavy grit wheel. Modeled after Turnout Gear, this material contains a rip-stop weave stopping unraveling if punctured standing up to hard working environments. Turnout Tuff is manufactured to meet flammability requirements including FMVSS 302, UFAC class 1, and California Fire Code Technical Bulletin No. 117 Section E.

Y__N__

DRIVER SEAT BOX STORAGE COMPARTMENT

There shall be a storage area under the driver’s seat. The compartment shall be 21.25 inches wide, 22.50-inches long, and 6.25 inches high. The access opening shall be 15.00 inches wide and 4.50 inches high.

Y__N__

ALUMINUM ACCESS DOOR

There shall be an aluminum door cover provided for the driver and officer seat compartment. The door shall be coated to match the interior of the cab, and it shall be equipped with a piano style hinge and a manual latch.

Y__N__

OFFICER SEAT

The Officer’s seat shall be a 911 Seats Incorporated XL, wide series seat

Standard features of this 6-way SCBA 3pt ABTS (all belts to seats) include 108 degree recline, adjustable headrest, wide contoured back. Electronic adjustments include fore/aft and up/down.

The seat shall feature a 21-inch-wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control); easing tailbone pressure, enhancing comfort and reducing vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity.

The seat(s) shall have a minimum 7-year manufactures warranty

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

Y__N__

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3pt ABTS (all belts to seats). The seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

Y__N__

SEAT BACK SMARTDOCK SCBA BRACKET

The seat shall include a SmartDock Gen 2 hands free SCBA bracket that utilizes a locking mechanism that engages during deceleration. The bracket shall hold the cylinder in place while in transit and release using no straps, levers, buttons or switches. This bracket shall be NFPA 1901 compliant.

Y__N__

SEAT MATERIAL

The seats shall include Turnout Tuff material; this urethane-coated denier nylon is water repellent to 75 PSI of water Pressure. Suitable for Heavy Duty applications, this cloth has a bursting strength of 300+ pounds per foot and surface abrasion of 1000+ cycles-Heavy Grit Wheel. Modeled after Turnout Gear, this material contains a rip-stop weave stopping unraveling if punctured standing up to hard working environments. Turnout Tuff is manufactured to meet flammability requirements including FMVSS 302, UFAC class 1, and California Fire Code Technical Bulletin No. 117 Section E.

Y__N__

OFFICER’S SEAT BOX STORAGE COMPARTMENT

There shall be a storage area under the officer’s seat. The compartment shall be 19.75 inches wide, 17.50 inches long, and 6.25 inches high. The access opening shall be 9.00 inches wide and 4.50 inches high.

Y__N__

FORWARD FACING OUTER SEAT

Two (2) forward facing outer crew area seat(s) shall be 911 Seats Incorporated XL, wide series fixed bottom seat(s).

The seat(s) shall also feature a 21-inch-wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control); easing tailbone pressure, enhancing comfort and reducing vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity. Seat to include wide comfort back with contoured foam.

The seat(s) shall have a minimum 7-year manufactures warranty

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

Y__N__

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3pt ABTS (all belts to seats). The seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

Y__N__

SEAT BACK SMARTDOCK SCBA BRACKET

The seat shall include a SmartDock Gen 2 hands free SCBA bracket that utilizes a locking mechanism that engages during deceleration. The bracket shall hold the cylinder in place while in transit and release using no straps, levers, buttons or switches. This bracket shall be NFPA 1901 compliant.

Y__N__

SEAT MATERIAL

The seats shall include Turnout Tuff material; this urethane-coated denier nylon is water repellent to 75 PSI of water Pressure. Suitable for Heavy Duty applications, this cloth has a bursting strength of 300+ pounds per foot and surface abrasion of 1000+ cycles-Heavy Grit Wheel. Modeled after Turnout Gear, this material contains a rip-stop weave stopping unraveling if punctured standing up to hard working environments. Turnout Tuff is manufactured to meet flammability requirements including FMVSS 302, UFAC class 1, and California Fire Code Technical Bulletin No. 117 Section E.

Y__N__

FORWARD FACING CENTER SEAT

One (1) forward facing center crew area seat(s) shall be 911 Seats Incorporated XL, wide series fixed bottom seat(s).

The seat(s) shall also feature a 21-inch-wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control); easing tailbone pressure, enhancing comfort and reducing vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity. Seat to include wide comfort back with contoured foam.

The seat(s) shall have a minimum 7-year manufactures warranty

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor

Y__N__

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3pt ABTS (all belts to seats). The seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

Y__N__

SEAT BACK SMARTDOCK SCBA BRACKET

The seat shall include a SmartDock Gen 2 hands free SCBA bracket that utilizes a locking mechanism that engages during deceleration. The bracket shall hold the cylinder in place while in transit and release using no straps, levers, buttons or switches. This bracket shall be NFPA 1901 compliant.

Y__N__

SEAT MOUNTING FORWARD FACING CENTER

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

Y__N__

SEAT MATERIAL

The seats shall include Turnout Tuff material; this urethane-coated denier nylon is water repellent to 75 PSI of water Pressure. Suitable for Heavy Duty applications, this cloth has a bursting strength of 300+ pounds per foot and surface abrasion of 1000+ cycles-Heavy Grit Wheel. Modeled after Turnout Gear, this material contains a rip-stop weave stopping unraveling if punctured standing up to hard working environments. Turnout Tuff is manufactured to meet flammability requirements including FMVSS 302, UFAC class 1, and California Fire Code Technical Bulletin No. 117 Section E.

Y__N__

SEAT FRAME FORWARD FACING ENCLOSED

The forward-facing center seats shall include an enclosed seat box which is located and installed on the rear wall.

The seat frame shall be constructed of no less than 5052-H32 .19" thick aluminum plate.

Y__N__

SEAT BOX ACCESS

There shall be one (1) access cutout in the forward-facing portion of the seat box.

Y__N__

SEAT FRAME FORWARD FACING ACCESS DOOR

The seat frame shall include a door with a flush latch in the center of the wall facing the tunnel.

Y__N__

SEAT COMPARTMENT DOOR FINISH

The seat box doors shall be finished in a high-performance polyurethane coating. The color shall be black.

Y__N__

SEAT COMPARTMENT FINISH

The seat frame shall be finished to match the interior finish of the cab.

Exterior Grab Handles 18" Aluminum

Y__N__

Exterior Grab Handles Black W/ Dual Lighting

Y__N__

EXTERIOR GRAB HANDLES

One (1) Black 18" exterior assist handle shall be mounted behind each of the cab doors. The grab handle shall be made of 1.25" diameter aluminum to enable non-slip assistance with a gloved hand and mounted on stanchions. The handle shall feature amber and blue LED lights which shall illuminate when the respective door is opened. The handles shall be mounted to the cab with nutserts.

Y__N__

GRAB HANDLE LIGHT ACTIVATION

The grab handle lights shall activate when the park brake is engaged.

Y__N__

ADDITIONAL GRAB HANDLE

There shall be an additional black anodized aluminum grab handle mounted on the side of the cab. It shall be mounted vertically in front of the door. The handle shall be approximately 9.00 inches long with stanchions on both the top and the bottom of the grab handle. It shall be approximately 2.50 inches forward of the door hinge.

Y__N__

CAB FASCIA

The cab fascia shall offer a traditional, yet aggressive appearance, in its design and shall be constructed of work-hardened 5052-H32 aluminum. This design shall feature:

- A super structure which is fully welded to the cab, for a seamless and robust integration
- Thermoformed headlamp bezels, constructed of impact resistant, polycarbonate composite which is vacuum metalized to eliminate peeling and bubbling of a chrome type film or plating
- Traditional style headlight bezels with 4 x 6 high intensity headlights which shall add a classic look to the fascia while improving visibility

Y__N__

FRONT GRILLE

A prominent front grille shall punctuate the aggressive design of the cab with its outboard wing style warning light bezels and heavy framework. The front grille shall feature:

- Fabricated construction for superior strength and durability
- Line-X black finish for a distinctive appearance
- Up to six (6) warning light locations along the mid bar for a variety of warning light combinations

Y__N__

LIGHT BEZEL

The front grille shall include wing light bezels that are able to house two (2) 4" x 6" lights. The bezels shall be constructed of steel and coated in black Line-X.

Y__N__

DEPARTMENT NAME IN CENTER GRILLE BAR

The fire department's name shall be laser cut into the center bar of the stainless-steel grille. There shall be room for up to ten (10) characters that are three-inch (3") tall.

Y__N__

GRILLE BACK LIGHTING

The fire department's name shall be back lit in red. The grille light shall come on with the E-Master switch or when the park brake is set.

Y__N__

FRONT GRILLE - UNITED STATES OF AMERICA FLAG INLAY

An American Flag shall be inlaid in the front apparatus grill. The flag shall be completely blacked out. Stainless-steel stars and stripes shall be overlaid over the black start and stripes to give a 3D grill effect.

Y__N__

FLUID FILLS & CHECK

For ease of maintenance and access, the following fluid checks shall be located behind the tiltable and/or removable mesh panel:

- Engine Oil dipstick
- Engine Coolant Sight Glass
- Power Steering Fluid dipstick
- Windshield Washer Fluid

The following fluid fill shall be located behind the tiltable and/or removable mesh panel:

- Engine Oil for the ISL and ISX12 Engines only
- Power Steering

Proposals including access to fluid checks through the tunnel or by raising the cab shall not be considered.

Y__N__

LED HEADLIGHTS

A set of 4 FireTech 4X6 LED Headlights shall be provided. The kit shall consist of 2 fixtures which operate as SAE VOR “high/low” beams, and 2 fixtures which operate as SAE VO “high-only” beams. All 4 headlights shall have a SAE “P” parking lamp halo surrounding the driving beams, which shall be energized any time the vehicle park brake is set. Optically, on the high/low headlight, an articulated set of elliptical optics must be used to illuminate the foreground while operating in “low” beam mode. The lens of the high/low beam headlight shall be marked “DOT VOR SAE HL P 16.” The lens of the high-only beam shall be marked “DOT VO SAE HL P 16.” All circuits of the headlights shall be designed to operate from 9-32v DC.

All 4 fixtures must be manufactured such that the internal pressure of the headlight remains constant regardless of operating temperature. The housing shall be equipped with a mechanically fastened GORE PolyVent. Similar functioning vent materials affixed to the housing using adhesive shall not be acceptable for substitution.

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The headlights shall be installed, wired, and aimed, in accordance with FMVSS108. The manufacturer of the headlights shall warrant the headlights against defects for the life of the apparatus.

The headlights shall be warranted against failure and condensation accumulation by for the life of the apparatus.

Y__N__

HEADLIGHT LOCATION

The headlights shall be located on the front fascia in the upper buckets, on each side of the cab grille.

Front Turn Signals Whelen M6 LED (2) w/ Clear Lens - Black Bezel

Y__N__

FRONT TURN SIGNALS

Two (2) Whelen M6 LED square, front turn signal assemblies with clear lens shall be included. Each turn signal shall be mounted in an attractive façade style bezel which is an integral part of the fascia.

Y__N__

TURN SIGNAL LOCATION

The turn signals shall be located on the front fascia directly below the headlights, one each side of the cab grille.

Y__N__

FRONT MARKER LAMPS

The cab front shall include five (5) LED amber marker lamps above the windshield in accordance with the Department of Transportation requirements.

Y__N__

SIDE MARKER LIGHTS

Two (2) Weldon amber LED round, side marker light assemblies shall be mounted in a black bezel on the side of the cab ahead of the driver door, adjacent to the front head lamp bezel.

Y__N__

HEADLIGHT AND MARKER LIGHT ACTIVATION

The head light and marker lights shall be activated through a switch on the driver's panel.

Y__N__

CAB FENDERS

The cab wheel wells shall include full width, rubber cab fenders to resist corrosion and enable easier cleaning maintenance. The inner liner, measuring 18" wide shall be constructed of plastic with an outer fenderette measuring approximately 3" wide. The inner liner shall be installed with 410 stainless steel hardware that has been coated with black zinc oxide.

Y__N__

LOGO

A logo shall be installed on each side of the chassis cab.

Y__N__

FRONT MUD FLAPS

The cab and chassis shall be provided with rubber front mud flaps.

Y__N__

CAB TILT SYSTEM

The cab shall be a full tilt style. A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

The dual lift cylinders shall lift the cab 45 degrees from a horizontal plane facilitating easy engine maintenance. The chassis engine shall be able to be removed if required without tilting the cab beyond 45-degrees.

The center line of the chassis cab tilt shall be a minimum of 76" from the center line of the front axle, providing a large corridor between the cab and front tire for maximum work space and accessibility to fan, fan belt, fan drive, air compressor, power steering pump, alternator and air filter.

The tilt angle shall allow access to the engine and area under the cab without contacting any components mounted to the gravel shield.

The cab shall include a four (4)-point rubber isolated cab pivot and mounting system. The rear histic mounts shall be isolated from the chassis frame to reduce the transfer of road vibrations and frame torque into the cab, while providing superior handling characteristics.

The front cab pivot assemblies shall be a 1/2" A36 steel plate with a .31" thick 2-1/2" diameter tube cross member mechanically attached to the cab and frame. There shall be two (2) greaseable rubber isolated engineered bushings to reduce the transfer of road vibrations into the cab.

The cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

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The cylinders shall include blocking valves (velocity fuses) which prevent motion when no control buttons are pushed. In the event of a hydraulic system failure, the valves shall retain the fluid in the cylinders.

A redundant mechanical stay arm shall automatically be engaged once the cab has been fully raised. Before lowering the cab, this device must be disengaged using the stay arm control located on the driver's side rear of the cab, providing the operator protection from high engine exhaust temperatures. The stay arm shall be safety yellow for high visibility so that it is easy to see whether the arm is in place or not.

All mounting points shall be bolted directly to the frame rail.

The cab lift safety system shall be interlocked with the parking brake. The cab tilt mechanism shall be active only when the parking brake is applied and the battery master switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

There shall be a manual pump incorporated in the event of a system failure to the cab tilt system.

A warning light shall illuminate in the cab instrument panel to indicate whenever the cab is not fully latched in the locked down position, and the parking break is release.

Y__N__

CAB TILT LIMIT SWITCH

An adjustable cab tilt limit switch shall be included with the cab tilt system. The switch shall effectively limit cab's travel to avoid impact with bumper mounted items, or station ceiling clearance, when being tilted.

There shall be a safety bar to hold the cab at the new adjusted height for additional safety.

Y__N__

CAB TILT LOCK DOWN INDICATOR

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

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

REARVIEW MIRRORS

The cab exterior shall include Ramco bus style mirrors, one (1) mounted on the Drivers' door and one (1) mounted on the Officer's side front cab corner radius below the windshield.

The Driver's side mirror shall be model BLK-310-1750-PHBLK. The mirror head shall be injection molded BLACK ABS plastic that measures 9.5" wide x 17.5" high and is mounted with

a polished die-cast aluminum arm.

The Officer’s side mirror shall be model BLK-310-1752-A18-PHBLK. The mirror head shall be injection molded BLACK ABS plastic that measures 9.5" wide x 17.5" high and is mounted with a 18" long polished cast aluminum arm.

The mirrors shall feature a lower heated remote convex glass with an upper heated remote flat glass. The mirror control switches shall be located within easy reach of the driver. The mirrors shall be manufactured using the finest quality non-glare glass and shall feature a rigid mounting reducing vibration. The mirrors shall be corrosion free under all weather conditions.

Y__N__

REARVIEW MIRROR REMOTE ACTIVATION

The driver's panel shall include activation for the rearview mirrors remote function. The activation for the mirror heat shall be through the Weldon Vista screen.

Y__N__

CAB TWO TONE PAINT

The cab surface shall be thoroughly washed with grease cutting solvent (PPG DX330) prior to any sanding. The cab surface shall then be sanded and minor imperfections filled and sanded. The prepared surface shall then be washed again with (PPG DX330) to remove any contaminants from all surfaces to be painted.

The first coating to be applied shall be a pre-treat epoxy primer (.5 to 1.0 dry film build) for maximum adhesion to the body material. The next two to four coats shall be a polyurethane primer resurfacing agent (PPG F4936). The film build shall be 4-6 mils when dry. The primer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure a maximum gloss finish. The last step shall be an application of at least three coats of PPG FDG polyurethane two-component color (single stage). The film build shall be 2-3 mils when dry. The single stage polyurethane shall provide a UV barrier to prevent fading and chalking.

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

Y__N__

CAB PAINT UPPER

The upper color of the cab shall be decided at the pre-construction meeting.

Y__N__

CAB PAINT LOWER

The lower color of the cab shall be decided at the pre-construction meeting.

Y__N__

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet on the cab in a special design designated by the City of Maplewood Fire Department.

Y__N__

CAB UNDERCOAT

The cab shall have an undercoat applied prior to the cab being set on the running gear. The under coat shall be a waterborne, one-component, air dry undercoat formulated to prevent chipping, cracking and marring of painted or unpainted surfaces after exposure to high impact sand, gravel or other abrasive materials. It shall also have high corrosion resistance.

Y__N__

PAINT SPRAY OUT

The customer shall be supplied with a paint spray out for customer approval prior to the cab being painted.

Y__N__

FRONT SUSPENSION

The front suspension shall be a Reyco Granning independent front suspension (IFS) offering superior ride and handling with a 20,000 lbs capacity.

The IFS suspension shall include:

- Fully independent double wishbone arms with carrier and kingpins
- Air Springs which shall maintain constant ride height regardless of the load
- 60 mm shock absorbers mounted at a near one-to-one ratio for extended shock life, better tire performance, and comfortable ride
- Hydraulic damper with rebound control to ensure load stability
- Independent adjustment of alignment settings
- Dual TAS 85 steering gears
- The IFS shall have a minimum three (3) year, 150,000 mile parts and labor warranty.

Y__N__

FRONT WHEEL BEARING LUBRICATION

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

Y__N__

CHASSIS ALIGNMENT

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

Alignment documentation shall be available upon request.

Y__N__

FRONT AXLE CRAMP ANGLE

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

Y__N__

FRONT TIRES

The front tires shall be Michelin 385/65R22.5 “L” tubeless radial XZE regional tread.

The front tires shall feature:

- A load capacity of 20,000 pounds per axle with a speed capacity of 68 miles per hour when properly inflated to 120 pounds per square inch. A Fire Service Intermittent usage speed capacity of 75 mph.
- A stamped load capacity of 22,000 pounds per axle with a speed capacity of 68 miles per hour when properly inflated to 130 pounds per square inch. A Fire Service Intermittent usage speed capacity of 75 mph.
- A fire service intermittent load capacity of 23,000 pounds per axle with a speed capacity of 68 miles per hour when properly inflated to 130 pounds per square inch

Y__N__

TIRE BALANCING

There shall be counter acting balancing beads used in all of the tires.

Y__N__

FRONT WHEELS

The front wheels shall be Accuride hub piloted, 22.50 inch X 12.25 inch steel wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The front rims shall be limited to 23,000 lbs.

Y__N__

WHEEL PAINT

The wheels shall be painted black in color.

Y__N__

FRONT BRAKES

The front brakes shall be Bendix disc brakes with 17" vented rotors. The disc brakes shall be provided with visual wear indicators.

The front brakes shall be approved per application.

Y__N__

STEERING COLUMN AND WHEEL

The cab shall include a Douglas Autotech steering column. The steering column shall feature an 18", four (4) spoke steering wheel located at the driver's position; a five (5) position tilt and 2.25" telescopic adjustment. The steering wheel shall be provided with a black vinyl cover with foam padding and a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch. The steering column shall also incorporate a steering angle sensor.

The chassis shall include dual electric 12-volt horn with a minimum 110 decibels.

Y__N__

REAR AXLE

A Meritor RS-26-185 driving axle shall be incorporated as the rear axle for the chassis. The axle shall feature:

- Rated capacity of 27,000 pounds
- Heavy duty Hypoid gearing for longer life, increased strength and quieter operation
- Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage
- Rigid differential case for high axle strength and reduced maintenance
- Rugged Dependability
- Rectangular shaped, hot formed housing with a standard wall thickness at spring seat of .56" for extra strength and rigidity
- Minimum 2-year warranty

Y__N__

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

Y__N__

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

Y__N__

REAR SUSPENSION

The single rear axle shall feature a Hendrickson Firemaax™ air suspension. The suspension shall include two optimized air springs mounted to cast structural trailing arms, a transverse cross beam for increased roll stability and two heavy duty shock absorbers. Dual air height control valves shall be installed to ensure equal frame height on both sides of the vehicle regardless of the load. Axle alignment is maintained using two eccentric bushings at each frame bracket.

The rear suspension capacity shall be rated at 27,000 pounds.

Y__N__

REAR BRAKES

The rear brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors. The disc brakes shall be provided with visual wear indicators.

The rear brakes shall include brake chambers supplied by Meritor and shall be approved per application.

Y__N__

REAR SHOCK ABSORBERS

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

Y__N__

ON-SPOT TIRE CHAINS

"On-Spot" automatic tire chains shall be installed on the rear axle of the apparatus. A switch installed on the cab dash shall allow the operator to "Engage" and "Disengage" the tire chains without stopping to enhance traction and braking while in forward or reverse motion. The system shall include a switch (in the Vista on V-Mux trucks), continuous duty solenoid, arm bearings and replaceable chain plates.

Y__N__

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2.

The rear tires shall feature:

- All weather tread designed for premier traction and mileage
- A stamped load capacity shall of 27,120 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch

Y__N__

TIRE BALANCING

There shall be counter acting balancing beads used in all of the tires.

Y__N__

REAR WHEELS

The rear wheels shall be Accuride hub piloted, 22.50 inch X 8.25 inch steel wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

Y__N__

WHEEL PAINT

The wheels shall be painted black in color.

Y__N__

VALVE STEM EXTENSION - SINGLE AXLE

To allow for easy checking and inflation of the rear inner tire it shall be equipped with a multi-layer valve stem extension, the layers shall be as follows: starting from the inner to out layer, stainless steel metal core, air tube, stainless steel jacket, protective color.

Y__N__

VEHICLE TOP SPEED

The top speed of the vehicle shall be programmed at approximately 68 MPH +/-2 MPH at governed engine RPM.

Y__N__

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a minimum of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. The system shall include an anti-compounding feature. All air reservoirs provided on the chassis shall be labeled for identification.

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

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

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Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

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

The Meritor Wabco ABS and ESC system shall come with a minimum three (3) year/300,000 mile parts and labor warranty.

Y__N__

AIR TANK BRACKETS & STRAPS

The air tank(s) shall be mounted to the frame rail with brackets that are hot dipped galvanized thereby creating a barrier and cathodic protection from corrosion, and eliminating the requirement for finish paint and the subsequent requirements for touch up paint and/or total repaint after a period of time due to nicks, chips and corrosion. Powder coated or painted air tank brackets shall not be accepted.

All of the air tank straps shall be plastic coated stainless-steel cable.

Y__N__

PARK BRAKE

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

Park brake system shall include an anti-compounding feature.

Y__N__

PARK BRAKE CONTROL

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

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

Y__N__

AIR DRYER

The brake system shall include a Wabco System Saver 1200 Plus air dryer with an integral 100-watt heater with a Metri-Pack sealed connector. The system shall have an integrated purge volume and integrated governor.

The system shall have the following features:

- Premium desiccant provides greater water adsorption
- Replaceable spin on cartridge for simple maintenance
- Compact light weight design
- Pressure relief safety valve
- Turbo cut-off valve for boosted compressor applications
- Service components are external for easy replacement
- Common service components proven for reliability and quality
- Integrated with the air governor.

Y__N__

MOISTURE EJECTORS

Heated, automatic moisture ejectors with a manual drain provision shall be installed on all reservoirs of the air supply system.

Y__N__

AIR SUPPLY LINES

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

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

Y__N__

AIR HORN SHUTOFF VALVE

A shut-off valve located under the front bumper shall be installed in the air horn supply line. The valve shall be clearly marked and accessible without tilting the cab.

Y__N__

FRAME

The chassis frame shall consist of two (2) “C” style parallel rails, constructed of high strength low alloy and shall feature the following:

- A Stenx **MODEL 110XF** 10.19” high by 3.63” deep cold rolled steel frame or equivalent.
- .38” thick flange
- Inner channel measuring 9.31" high x 3.25" deep x .25" thick
- The 10.19” frame height shall be maintained throughout the entire length of the frame to allow for maximum storage capacity for the entire apparatus.
- If frame rails that are larger than those specified are to be utilized, the maximum height of each frame rail shall not exceed 10.25” at any point on the frame rail. This will ensure the lowest possible vehicle center of gravity allowing maximum stability as well as providing the lowest body height possible.
- Frame rail shall have a consistent frame web throughout the entire length.
- The entire frame rail design shall be manufactured in the United States of America and readily available on the aftermarket.
- Grade 8 Structural fasteners, Huck bolts shall not be acceptable.
- The hardware used for the chassis shall be are to be corrosion resistant. The process shall be dip-spin-bake coated with two coats of zinc/aluminum metal flake coating in an inorganic binder. Coating one is to be zinc flake and coating two is to be aluminum flake. The zinc flakes sacrificially corrode to protect the base metal. The aluminum flakes prolong the life of the zinc. Salt fog test life, based on ASTM B117 on unassembled fasteners, is 1000 hours to red rust. The same test on assembled fasteners is 750 hours to red rust. The two-step coating is RoHS compliant as it eliminates the hexavalent chromium used in the passivation of electroplated zinc coatings to create yellow zinc (zinc dichromate). The elimination of the zinc plating also greatly reduces the likelihood that hydrogen embrittlement will occur. Hydrogen embrittlement is a side effect of electroplating that reduces toughness and can lead to fracture.
- Manufacturer's lifetime warranty

The frame ratings shall be as follows:

- 110,000 PSI minimum yield strength high strength low alloy steel
- Minimum Resisting Bending Moment (RBM) of 2,810,000-inch pounds per rail

To avoid frame cracking and failure over time, the top flange of the frame adjacent to the engine installation shall have a tapered design. Notches for engine components shall not be accepted due to fatigue and the potential for cracking.

UNDER-FRAME REINFORCEMENT

An under slung frame reinforcement shall be installed below the frame rails in the transmission area to increase the vertical rigidity of the frame.

The under-frame reinforcement provides:

- Enhanced handling
- Improved ride quality
- Increase resistance to frame and cross member fatigue
- Enhanced vehicle stability providing improved safety to occupants

CROSS MEMBERS

There shall be a minimum of seven (7) steel plate cross members installed on the apparatus.

- 50,000 psi minimum yield strength steel plate cross members
- Manufacturer's lifetime warranty to match frame warranty.
- Installed with one-piece cross member gusset to maximize vertical strength and minimize cross member flex
- Crossmembers can be inverted when required to allow for PTO drive line installation without the need for notching or modifying the cross members in anyway.

FRONT FRAME EXTENSION

A single piece 80,000 PSI steel extension shall be installed on the front of the frame rails.

- Reduces frame flex which translates into improved vehicle handling and ride quality
- Designs using multiple piece, bolted together extensions will not be acceptable since they are prone to more flexing, possible frame failure and cab cracking
- Allows radiator to be removed through the bottom of the frame extension without tilting the chassis cab
- Minimizes damage to the chassis cab in the event of frontal impact accident
- Maintains structural integrity of the chassis frame rails while attaching bumper extensions of varying lengths

- Splayed or notched frame rails and/or extensions shall not be accepted
- Provides foundational strength and stability of the cab tilt system which provides superior access to engine and cooling components

Y__N__

FRAME FINISH

Prior to assembly, each frame rail section and cross members shall be hot dip galvanized. The galvanizing process will permeate each frame section to prevent rust and corrosion and not be merely an over-coating. The galvanized frame sections shall be provided in the natural finish eliminating the requirement for finish paint and the subsequent requirements for touch up paint and/or total repaint after a period of time due to nicks, chips and corrosion.

Galvanizing shall provide a barrier and cathodic protection from corrosion. During the galvanizing process, the complete frame sections and cross members shall be immersed in molten zinc; except for the cross member that contains the engine mounts. Through diffusion, the zinc shall bond to the steel at the molecular level. The resulting zinc coating shall provide a barrier that shields the steel from the environment.

Y__N__

FRONT FRAME EXTENSION FINISH

The front frame extension shall be hot dipped galvanized to resist weather, dirt and other corrosive material.

Proposals offering powder coated or painted frames shall not be accepted.

Y__N__

FRAME GALVANIZING WARRANTY

Minimum Twenty (20) Year Warranty

Y__N__

ENGINE

A Cummins L9 9.0 liter, four-cycle diesel fueled, turbo charged engine shall feature the following:

- One of the highest power to weight ratios in its class
- Heavy-duty replaceable wet liners, roller followers, by-pass oil filtration with replaceable spin on cartridge and targeted piston cooling for longer service in tough work environments
- Improved cooled EGR system

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- 543 Cubic inches of displacement
- High pressure common rail fuel system producing a precise quantity of fuel at ultra high pressures
- Fully integrated, robust electronic engine controls
- Electric fuel lift pump.

The engine shall be coupled with a Holset VGT™ (Variable Geometry Turbocharger).

The engine shall be filled with Citgo brand Citgard 500 (or equivalent) SAE 15W40 CJ4 low ash engine oil for proper engine lubrication.

The engine shall be EPA certified to meet the 2017 emissions standards without compromising performance, reliability or durability using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an original equipment manufacturer installed oil drain plug.

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

Y__N__

ENGINE PLACEMENT

The engine shall be a maximum of 36" from the center line of the front axle to the front face of the engine block. The engine valve cover shall be a maximum of 23" from the top of the frame.

The engine placement shall provide optimal weight distribution to the front axle to enhance vehicle handling. More weight out in front of the front axle can cause a "fulcrum effect" and cause unsafe "bump steer" conditions.

The engine shall be mounted in a position that provides for the lowest possible height of the interior engine tunnel. An engine tunnel height from the floor of the chassis cab shall be no more than 21" high inside the cab.

Y__N__

AIR COMPRESSOR

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

Y__N__

AIR GOVERNOR

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

450HP Cummins L9 - 2017
HORSEPOWER

Y__N__

The engine shall have 450 horsepower at 2100 RPM, with a governed speed of 2200 RPM.

The engine shall have 1250-foot pounds of torque at 1400 RPM.

Y__N__

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, one (1) piece nine (9) blade Horton clutched type fan drive, and shroud.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails, the fan shall engage to prevent engine overheating due to the fan clutch failure.

Fan Clutch Programming - Standard

Y__N__

The clutch fan shall automatically engage in pump mode (when applicable).

Y__N__

AUXILIARY ENGINE BRAKE

A Cummins engine compression brake, for the six (6) cylinder engine, shall be provided. The engine compression brake shall:

- Activate upon 0% accelerator when in operation mode and activate the vehicle's brake lights.

Y__N__

TRANSMISSION PRE-SELECT

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

Y__N__

AUXILIARY ENGINE BRAKE CONTROL

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

- A valid gear ratio is detected.

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

The compression brake shall be controlled via an off/low/medium/high virtual switch on the Weldon Vista display. The multiplex system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

Y__N__

ENGINE PROGRAMMING HIGH IDLE SPEED

The Engine high idle will be set at 1250 RPM. The high idle will be operational only when the parking brake is applied and the truck transmission is in neutral.

Y__N__

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. The high idle shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output and optimize output of the HVAC system.

This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually through an virtual switch in the Vista, or automatically re-engage when the brake is set, or when the transmission is placed in neutral. A light on the Vista screen shall indicate the high idle speed control.

Y__N__

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located behind the fascia.

The filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame.

This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The intake shall also feature a cyclone style water separator to remove unwanted moisture from incoming air.

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

The filter must have a capacity of no less than 1350 cubic feet of air per minute. The filter paper media must be of a flame retardant treated material. An electric air filter restriction indicator shall also be included with the system.

Y__N__

ENGINE EXHAUST SYSTEM

The exhaust system shall include a one-piece diesel particulate filter (DPF), a diesel oxidation catalyst, and a selective catalytic reduction catalyst (SCR) to meet current EPA standards.

The selective catalytic reduction catalyst shall utilize a diesel exhaust fluid solution consisting of urea and purified water to convert nitrogen oxide into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be injected into the system between the DPF and SCR chambers.

The system shall utilize 0.065-inch-thick stainless-steel exhaust tubing between the engine turbo and the DPF.

The after-treatment canister through the end of the tailpipe shall all be connected with zero leak gasketed clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires with an exhaust gas diffuser.

The diffuser shall lower exhaust gas temperatures during the regeneration cycle.

Y__N__

DIESEL EXHAUST FLUID TANK

There shall be a molded cross-linked polyethylene tank for the Diesel Exhaust Fluid (DEF). The tank shall have a capacity of not less than five (5) usable gallons (18.92 Liters) and shall be mounted on the left-hand side of the chassis frame in front of the batteries below the frame.

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

Y__N__

DIESEL EXHAUST FLUID TANK

There shall be an access door provided in the top rear step of left side crew area for access to the DEF tank.

Y__N__

ENGINE EXHAUST ACCESSORIES

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

Y__N__

ENGINE EXHAUST WRAP

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

Y__N__

DIESEL PARTICULATE FILTER CONTROLS

Provide DPF system status annunciation indicator lights, lights shall be installed on driver dash to alert driver when regeneration is needed and when DPF is in an active re-generation cycle.

Warning systems shall provide DEF low level warning.

Driver's dash shall be provided with two (2) controls for the Diesel particulate filter; one (1) manual regeneration switch to activate a regeneration cycle manually when passive burn is unobtainable due to driving conditions; and one (1) Regen "Inhibit Switch".

The switches shall be located in a covered location.

Y__N__

ENGINE COOLING SYSTEM

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system requirements.

The system shall include and feature the following:

- A vertically stacked charge air cooler providing the maximum cooling capacity for the engine. Proposals offering horizontally stacked charge air cooler shall not be acceptable.
- The charge air cooler and radiator shall measure not less than 1382 square inches
- A surge tank with a low coolant probe and capable of removing entrained air from the cooling system, with built in sight glass
- Radiator re-circulation shields to prevent heated air from re-entering the cooling system and affecting performance
- Mounts allowing the entire radiator to drop through the frame for service when needed

CITY OF MAPLEWOOD (FIRE DEPARTMENT)

- Engine placement shall provide a minimum of 8” between the engine fan and radiator to maximize the airflow and cooling of the engine.
- A Spin on Element water filter with corrosion inhibitor shall be provided for the cooling system.
- The coolant filter shall be provided with two (2) shut off valves, one (1) one inlet and one (1) outlet.
- Cooling system shall be tested and certified by the engine manufacturer

Y__N__

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include constant tension spring clamps.

Y__N__

ENGINE COOLANT

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

Supplemental coolant additives (SCA) are not required as this is part of the extended life coolant makeup.

Y__N__

ADDITIONAL COOLANT SHUT OFF VALVE

An additional coolant shut off valve with connection shall be installed in the chassis coolant lines with a connector. This shall allow for the installation of an additional heater such as a pump compartment heater without draining the coolant system.

Y__N__

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. This pump heat exchanger shall circulate water from the fire pump to the heat exchanger thereby reducing the temperature of the coolant for the engine. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant.

Y__N__

TRANSMISSION

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

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

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

The transmission gear ratios shall be:

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

Y__N__

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

Y__N__

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic oil drain plug.

Y__N__

AUTOMATIC NEUTRAL

The transmission shall be provided with an automatic neutral. When the parking brake is applied the transmission automatically returns to neutral.

Y__N__

TRANSMISSION FLUID

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

Y__N__

TRANSMISSION SHIFT SELECTOR

An Allison GEN V pressure sensitive range selector touch pad shall be provided and located on the tunnel to the right of the driver.

The shift selector shall provide an indicator on the digital display and shall alert the driver/operator when a specific maintenance function is required.

Y__N__

TRANSMISSION MODE PROGRAMMING

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

Y__N__

TRANSMISSION PROGRAMMING

The EVS Vocation Package Number 198 for the fire service for this apparatus as a Pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector which requires re-selecting the drive range to shift out of neutral for the override.

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

A nine (9) pin diagnostic connector will be provided.

The trans module shall contain the following circuits:

Function ID	Description	Wire Assignment
C1	PTO Drive Interface Output 1	142
J	Fire Truck Pump Mode (4 th Lockup)	122/123
C	Range Indicator	145 (4 th)
G1	PTO Drive Interface Output 1	130
	Signal Return	103

Y__N__

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints.

The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.

Y__N__

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1098 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

Y__N__

FUEL SYSTEM

The fuel tank shall have a capacity of fifty (50) gallons/one hundred eighty-nine (189) liters and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length. The tank shall offer:

- A vent port which will facilitate venting to the top of the fill neck for rapid filling without any “blow-back”
- Two (2) 2” NPT fill ports for left and right hand fill with a .5” NPT drain plug centered side to side 9” from the front of the tank
- A roll over ball check vent for temperature related fuel expansion and draw
- A design including dual draw tubes and sender flanges
- A baffled design and shall be constructed of steel
- A black Powder Coated exterior to ensure corrosion resistance

The fuel tank shall be mounted below the frame, behind the rear axle. There shall be two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank, allowing the tank to be easily lowered and removed for service purposes.

The strap hanger material shall be stainless steel.

For isolation of vibration and movement, rubber isolating pads shall be provided between the tank and the hanger strap assemblies. The tank straps shall be attached to rubber coated cross members which help isolate the tank from frame flex.

Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

All fuel lines shall be connected with steel fittings with all fittings pointed towards the right side (curbside) of the chassis.

The chassis fuel lines shall feature an additional 4' of length provided so the tank can be easily lowered and removed for service purposes which shall be coiled and secured at the top of the tank.

Y__N__

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black aramid braided lines with a fiber outer braid. The fuel lines shall be connected with reusable steel fittings. Fuel line is compatible with bio-fuel blends.

Y__N__

FUEL SHUTOFF VALVE

Two (2) fuel shutoff valves shall be installed in the fuel draw line. One (1) valve shall be installed at the primary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

A second fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

Y__N__

FUEL COOLER

The cross-flow air to fuel cooler shall be all aluminum and shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located behind the battery box, under the frame.

The fuel cooler shall incorporate a fan for improved heat transfer.

The fuel cooler shall be mounted to the frame using hot dipped galvanized brackets. Powder coated or painted brackets shall not be acceptable.

Y__N__

ALTERNATOR

The charging system shall include a 320-Amp Delco Remy 40SI 12-volt alternator. The alternator shall feature:

- Premium brushless design providing added durability and life
- Provide the highest efficiency resulting in less horsepower requirements

- Remote sense technology in extending the life of the battery
- 70% efficiency
- Minimum 3 Year warranty

Y__N__

V-MUX ELECTRICAL SYSTEM

There shall be a 12-volt direct current single starting electrical system providing power to all components for the cab and chassis. The system shall feature:

- A Weldon Multiplexed system
- 300-degree Fahrenheit high temperature, flame retardant loom
- All SAE wiring color coded and labeled as to its function
- Wiring which is cross link with 311-degree Fahrenheit insulation
- A suppressed system in accordance with SAE J551

The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload.

General protection circuit breakers will be a combination of automatic and manual reset breakers. This will provide a durability and capacity maximization of the electrical system. When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

Y__N__

EMI/RFI PROTECTION

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

Y__N__

ELECTRICAL HARNESSING INSTALLATION

To ensure rugged dependability, all wiring harnesses installed by the apparatus manufacturer will conform to the following specifications:

SAE J1128 - Low tension primary cable

SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring

SAE J163 - Low tension wiring and cable terminals and splice clips

SAE J2202 - Heavy duty wiring systems for on-highway trucks

NFPA 1901 - Standard for automotive fire apparatus

FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses

SAE J1939 - Serial communications protocol

SAE J2030 - Heavy-duty electrical connector performance standard

SAE J2223 - Connections for on board vehicle electrical wiring harnesses NEC - National Electrical Code

SAE J561 - Electrical terminals - Eyelet and spade type

SAE J928 - Electrical terminals - Pin and receptacle type A

For increased reliability and harness integrity, harnesses will be routed throughout the cab and chassis in a manner which allows the harnessing to be laid into its mounting location. Routing of harnessing which requires pulling of wires through tubes will not be allowed.

Wiring will be run in loom or conduit where exposed and have grommets or other edge protection where wires pass through metal. Wiring will be color, function and number coded. Wire colors will be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and uses a single wire color for all wires will not be allowed. Function and number codes will be continuously imprinted on all wiring harness conductors at 3.00" intervals. All wiring installed between the cab and into doors will be protected by an expandable rubber boot to protect the wiring. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

- All wire ends not placed into connectors will be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap will not be allowed.
- All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
- For low cost of ownership, electrical components designed to be removed for maintenance will be quickly accessible. For ease of use, a coil of wire will be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- Corrosion preventative compound will be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation of the plug.
- Any lights containing non-waterproof sockets in a weather-exposed area will have corrosion preventative compound added to the socket terminal area.
- All electrical terminals in exposed areas will have protective Coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps will be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields will be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust will be protected by a heat shield.
- Cab and crew cab harnessing will not be routed through enclosed metal tubing. Dedicated wire routing channels will be used to protect harnessing therefore improving

the overall integrity of the vehicle electrical system. The design of the cab will allow for easy routing of additional wiring and easy access to existing wiring.

- All braided wire harnesses will have a permanent label attached for easy identification of the harness part number and fabrication date.
- All standard wiring entering or exiting the cab will be routed through sealed bulkhead connectors to protect against water intrusion into the cab.

Y__N__

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer will conform to the following requirements:

SAE J1127 - Battery Cable

SAE J561 - Electrical terminals, eyelets and spade type

SAE J562 - Nonmetallic loom

SAE J836A - Automotive metallurgical joining

SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring

NFPA 1901 - Standard for automotive fire apparatus

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

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

Y__N__

ELECTRICAL COMPONENT INSTALLATION

All lighting used on the apparatus will be, at a minimum, a two (2) wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding will not be allowed.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests will be recorded and provided to the purchaser at time of delivery.

Y__N__

SUMMARY OF LOAD MANAGEMENT SYSTEM

In the V-MUX electrical system there will be eight pre-defined Load Manager Trigger points spaced apart in 0.4 Volt increments. Each Output channel can be set for Load Management that will be turned OFF if node voltage falls below a certain level. The trigger points will be configured as shown below.

Load Manager Trigger Points:

1: 12.5-V	Load Shed Region 1 (12.5 - 12.1 V)
2: 12.1-V	Load Shed Region 2 (12.1 - 11.7 V)
3: 11.7-V	Load Shed Region 3 (11.7 - 11.3 V)
4: 11.3-V	Load Shed Region 4 (11.3 - 10.9 V)
5: 10.9-V	Load Shed Region 5 (10.9 - 10.5 V)
6: 10.5-V	Load Shed Region 6 (10.5 - 10.1 V)
7: 10.1-V	Load Shed Region 7 (10.1 - 9.7 V)
8: 9.7-V	

When the voltage of a Load Managed device recovers back above the trigger point, there will be an additional 30 seconds before the Output channel is turned back ON. This buffering time is to ensure that the added load doesn't immediately pull the voltage back below the trigger point.

Below are the standard voltage managed outputs that will be triggered off at 12.1 V.

- HVAC FAN MED
- HVAC FAN HIGH
- HVAC FAN LOW
- AUX DEFROST FANS
- A/C CONDENSER FANS RLY
- A/C COMPRESSOR CLUTCH

Y__N__

AUTO THROTTLE (AUTO HIGH IDLE)

There will be an Automatic High Idle (Auto Throttle) logic that will run in conjunction with the Load Management. The Auto Throttle logic will be ran on the Hercules node under the passenger side kick panel compartment. The standard system design will be triggered on at 12.3 V and triggered off at 12.6 V with a 30 second delay before disengagement. The Auto Throttle function will act to turn the V-MUX High Idle Output ON and OFF. In turn the High Idle sends a signal to the engine ECU. The Auto Throttle Command will be interlocked with **Park Brake** and **Park/Neutral** for safety. A **Service Brake** override interlock will also be configured to immediately return the engine to Low Idle if the vehicle has to move.

Y__N__

12V POWER POINTS

There shall be one (1) 12v power point and one (1) dual USB power point provided. They shall be mounted in the driver’s side of the dash. They shall be within easy reach of the driver; and shall be wired directly to the battery

Y__N__

12V POWER POINTS

There shall be one (1) 12v power point and one (1) dual USB power point provided. They shall be mounted in the officer’s side of the dash. They shall be within easy reach of the officer; and shall be wired directly to the battery

Y__N__

MULTIPLEX DISPLAYS

Two (2) Weldon Vista IV displays shall be located one (1) on the driver’s side dash and one (1) on the officer’s side of the dash.

The Vista IV displays shall feature:

- A full color LCD display screens
- A message bar displaying the time of day, and important messages requiring acknowledgement by the user
- Four (4) push button style controls on either side of the screen for the on-board diagnostics
- Seven (7) push button style controls located below the screen for the on-board diagnostics
- Video ready display screens for back- up cameras, thermal cameras, and DVD
- A DIN type input connector ready for GPS interfacing shall be incorporated into the back of the display
- There shall be a display which indicates any open cab door with a visual display.
- There shall be a text message indication for low washer fluid.

The Vista IV displays shall measure approximately 10.36” wide x 7.63” in height.

Y__N__

DRIVER SWITCHES

The driver switch panel to the right of the Driver's position shall include two power points in the upper left corner and one (1) row with six (6) backlit rocker switches with laser etched labels located under the Weldon Vista screen.

Standard switches shall include:

- Windshield Wiper/Washer Control (except when Smart Wheel is specified)
- Dash panel dimmer switch

Y__N__

V-MUX WARRANTY – 4 YEAR

A minimum four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Incorporated; shall be provided by the apparatus manufacturer for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of manufacture.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation. A copy of the warranty shall be provided with each Bidders proposal for the review and evaluation of the Purchaser.

Y__N__

ACCESSORY POWER DISTRIBUTION PANEL

An accessory power distribution panel shall be installed. The panel shall feature a covered twelve (12) blade type fuses and have a ground section; and shall be protected by a 40 amp fuse. The panel shall be capable of carrying up to a maximum 40 amp battery direct load.

Please indicate location for Power Stud(s):

Y__N__

ADDITIONAL POWER & GROUND STUDS

One (1) additional 40A power and 1/4" ground studs shall be provided. These shall be powered through the master switch.

Y__N__

COMMUNICATION ANTENNA BASE

A communications antenna base shall be provided and mounted on the cab roof.

Y__N__

COMMUNICATION ANTENNA CABLE ROUTING

The cable routing for the communication antenna shall terminate under the Driver seat.

Y__N__

GPS ANTENNA

One (1) cell phone antenna shall be supplied by the customer and installed. The location shall be coordinated and determined by best practice or as specified by the customer.

Y__N__

COMMUNICATION ANTENNA CABLE ROUTING

The cable routing for the communication antenna shall terminate under the Driver seat.

Y__N__

AM/FM RADIO WITH WEATHERBAND

A radio receiver shall be located in the headliner. The receiver shall handle vibrations, temperature fluctuations, and humidity with ease. The front panel's protective covering shall keep out any dust and debris.

The receiver's AM and FM tuner shall feature presets for radio stations, and the Weather Band tuner shall include automatic NOAA weather for alerts to any severe weather. A portable player jack shall be available on the front panel.

The backlit LCD display shall feature easy to read digital readout in all lighting conditions.

Y__N__

OVERHEAD RADIO MOUNT

The overhead radio shall be mounted on the driver's side.

Y__N__

SPEAKERS

Four (4) overhead speakers shall be provided in the cab for the radio.

Y__N__

DATA RECORDING SYSTEM

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

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

- Date

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

Y__N__

SEAT BELT WARNING

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

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

Y__N__

CAB INSTRUMENTATION

The instrumentation panel within the cab shall feature a Pacific Insight gauge panel which shall include three (3) 5" diameter information centers, telltale indicator lamps, control switches, alarms, and a LCD diagnostic panel.

The gauges shall be easy to read including red backlighting.

The instrument panel shall contain the following gauges and indicators:

The middle information center shall include:

- A programmable speedometer to read either 0 to 140 MPH or 0 to 140 KM/H
- An amber telltale lamp indicating the Check Engine
- An amber telltale lamp indicating MIL Engine Emissions System Malfunction
- A red telltale lamp indicating Stop Engine
- A tachometer gauge with 0-3,000 RPM

The right-hand side information center shall include:

- A gauge to display the engine oil pressure with high and low-level indicators and stop engine alarm
- A fuel level gauge with a low fuel indicator and alarm
- An LED bar displaying 4 stages of the level for the Diesel Exhaust Fluid (DEF) with a refill indicator
- A voltage gauge with low voltage indicator

- A water temperature gauge with high water temp indicator and alarm

The left-hand side information center shall include:

- A primary air PSI gauge including low air and high air warning displays
- A secondary air PSI gauge with low and high air warning indication

An LCD diagnostic display, located in the left-hand side information center shall include digital readouts for the following:

- Odometer
- Transmission oil temp
- Engine oil temp
- Speedometer
- Engine hours
- Engine and transmission code
- Exhaust temp
- Engine coolant temp
- Engine oil PSI
- Turbo boost PSI
- Primary air pressure
- Secondary air pressure
- Engine load %
- Engine torque
- Battery volts
- Fuel level %
- Vehicle speed
- RPM
- DEF level
- Instant fuel economy
- Average fuel economy
- Engine hours
- Capable to record three trips, each shall be include:
 - Trip distance
 - Fuel economy
 - Fuel used

- Idle fuel used
- The LCD screen shall also provide diagnostic capability

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located below the middle information center. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols. The following indicator lamps shall be located on the instrument panel;

BLUE Indicator Lights

- High Beam Headlight

GREEN Indicator Lights

- Right Turn Indicator
- Left Turn Indicator
- Battery On (Always On)

YELLOW Indicator Lights

- Particle Filter Regeneration (DPF)
- Regeneration Inhibit (Switch Engaged)
- Air Intake Restriction
- High Exhaust System Temperature (HEST)
- Wait to Start (when applicable)
- ATC (Automatic Traction Control) (when applicable)
- Water in Fuel

RED Indicator Lights

- Low Engine Coolant Level
- Air Bag Warning (when applicable)
- Check Transmission
- High Transmission Temperature
- ABS
- Parking Brake

Y__N__

ALARMS

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

Alarm silence: Any active audible alarm will be able to be silenced with a button on the right side of the LCD screen.

Y__N__

INDICATOR LAMP AND ALARM PROVE-OUT

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

Y__N__

DIAGNOSTIC PANEL

A diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved trouble shooting providing a lower cost of ownership. The panel shall be accessible while standing on the ground and located inside the driver's door to the left of the steering column. Diagnostic switches shall allow engine and ABS systems to provide blink codes should a problem exist.

The diagnostic panel shall include:

- Engine diagnostic port
- V-Mux USB diagnostic port (when applicable)
- Engine diagnostic switch (blink codes flashed on check engine telltale indicator)
- Diesel particulate filter regeneration switch (when applicable)
- Diesel particulate filter regeneration inhibit switch (when applicable)

The enclosed diagnostic panel, accessible through the HVAC access panel shall include:

- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (when applicable)

Y__N__

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

Y__N__

BATTERIES

The single start electrical system shall include six (6) group 31 1000 CCA batteries.

The batteries shall feature:

- A 200 minute reserve capacity
- 4/0 dual path starter cables per SAE J541
- Heat shrink and sealant encapsulated ends on the cables
- Maintenance free

Y__N__

BATTERY COMPARTMENTS

A well ventilated, hot dipped galvanized battery storage compartment shall house the batteries on the officer and driver side of the chassis and shall be located to offer easy access to the batteries when the cab is tilted.

Each battery compartment shall feature:

- Hot dipped galvanized 3/16" steel construction.
- A complete floor of heavy duty, industrial grade, recycled Turtle Tile brand interlocking matting
- A double hinged hot dipped galvanized steel cover with two (2) rubber latches shall be utilized providing easy access to the batteries. No tools shall be required to gain access to the batteries.
- When in the open position, the double hinged door shall be flush with the bottom of the battery compartment, allowing for a sweep out style floor and removal of the batteries when necessary, without the inference of a lower lip.

Y__N__

BATTERY CABLES

The starting system shall include cables which shall be protected by a 275-degree F, minimum high temperature flame retardant loom.

The cables shall be in a loom to help keep out dirt, dust and debris.

Y__N__

BATTERY JUMPER STUD

The starting system shall include battery jumper studs.

These studs shall be located in the forward most portion of the driver's side lower step.

The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

Y__N__

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a marine grade two position switch, of which shall be mounted on the left side of the steering wheel adjacent to the driver's knee.

A push button type starter button shall be provided on the driver dash to the left of the steering wheel.

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

Y__N__

POWER & GROUND STUD

An electrical distribution panel shall include two (2) power studs. The studs shall be a minimum of 1/4" and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) 1/4" ground stud.

Y__N__

GROUND LIGHTS

Each door shall include a Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the cab step below each door.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

Y__N__

GROUND LIGHT ACTIVATION

The ground lighting shall be activated when the park brake is engaged and by the respective side turn signal.

Y__N__

CAB STEP LIGHTING

One (1) LED light shall be mounted to the riser of the middle cab step, a total of eight (8) step lights for the cab, in accordance with NFPA.

Each light shall include a polycarbonate lens and shall be contained in a housing which is vibration welded with a bulb which shall be shock mounted. Each step light shall not be any larger than 3" in diameter.

Y__N__

STEP LIGHT ACTIVATION

The step lighting shall be activated by opening any of the cab doors on the respective side.

Y__N__

INTERIOR DOOR WARNING LIGHTS

The interior of each door shall include one (1) 15" Weldon Amber Direct Flash LED warning light located on the door above the window. Each light shall activate with a flashing pattern when the door is in the open position to serve as a warning to oncoming traffic.

Y__N__

ENGINE COMPARTMENT LIGHTING

Two (2) LED lights shall be mounted to the engine compartment in such a fashion as to provide as much light as possible to the engine compartment area. The engine compartment lighting shall activate with the tilting of the cab.

Y__N__

INTERIOR OVERHEAD CAB LED LIGHTING

Each cab door shall include a dual red and white LED lamp. There shall be one (1) light centered over each of the Driver and Officer's seat and one centered over each crew door.

The clear lamp shall illuminate with the opening of each respective door with both the red and clear portions of the lamp activated by individual lighted switches on each lamp.

Y__N__

DO NOT MOVE APPARATUS/ HAZARD LIGHT

The front headliner of the cab shall include a flashing red Whelen 500 Series LED light clearly labeled "Do Not Move Apparatus".

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

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

Y__N__

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

Y__N__

REAR FACING CAMERA

A rear facing box style rearview camera shall be installed on the rear of the vehicle. The camera shall activate when the vehicle transmission is shifted into reverse with the image viewed on the Driver and Officer's side Vista screens.

The rear facing camera shall feature stainless steel construction, automatic heating when the temperature is below 10 degrees Fahrenheit, and 150-degree lens.

Y__N__

BATTERY CHARGER

One (1) Kussmaul auto charger 1200 model #091-187-12, 40 amp fully automatic high output battery charger shall be wired to the 12 volt battery system. The charger unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

Y__N__

CHARGER LOCATION

The battery charger can be mounted under the Forward-facing Seat box or other specifically identified and factory approved location

Y__N__

EJECTION UNIT

A Kussmaul Super Auto Eject 20-amp 120 volt shore power assembly, cover, solenoid input wire, power cord, and plug shall be installed. The 12-volt solenoid shall eject the shore power cord away from vehicle path upon sensing engine start; after ejection, the weatherproof cover snaps into position over inlet. The unit shall sequence energizing of an auto eject, eliminating terminal arching when connecting and disconnecting power cord.

The unit shall have a waterproof back enclosure with watertight cable fittings, which protect mechanism from road contamination. A pre-wired 3-foot AC electrical cord and starting sense wire (side wired) shall be installed.

The assembly shall have the following dimensions: 6.17” high x 4.08” wide x 2.8” deep with 4 lb. weight.

Y__N__

There shall be a Kussmaul 20-amp super auto eject with black cover supplied.

Y__N__

SHORELINE LOCATION

The shoreline shall be located in the Driver’s side bumper tail.

Y__N__

The Battery Charger indicator shall be located on the forward portion of the cab ahead of the front door hinge on the cab radius.

Y__N__

ELECTRIC SIREN AND CONTROL

One (1) Whelen 295HFSA7 electronic siren control head with remote dual amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer’s needs. The siren shall feature 200-watt output, radio broadcast, public address, wail, yelp, or piercer tones and hands-free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

Y__N__

SPEAKER

One (1) Federal Signal DynaMax 100-watt speaker, Model #ES100, shall be installed. The speaker shall feature a Neodymium driver and a high strength composite housing that is chemical resistant and maintains rigidity at high temperatures.

Y__N__

SPEAKER

One (1) stainless steel grille shall be installed on the speaker.

Y__N__

SPEAKER LOCATION

The siren speaker shall be installed on the apparatus bumper extension, as determined by the body manufacturer.

Y__N__

FEDERAL MECHANICAL SIREN

One (1) Federal Signal Q2B mechanical siren shall be pedestal mounted onto the front bumper. The "Q" siren shall feature a highly polished chrome body and grille. The siren's distinctive mechanical wail sound shall produce 123 db at 10'. The siren control switch(es) shall be installed in the cab.

Y__N__

SIREN CONTROL

One (1) foot switch shall be provided on the driver's side of the cab floor to activate the Federal Signal Q2B siren.

Y__N__

SIREN CONTROL

One (1) foot switch shall be provided on the officer's side of the cab floor to activate the Federal Signal Q2B siren.

Y__N__

SIREN BRAKE

Two (2) push button siren brake switches for the Federal Signal Q2B siren shall be provided, one (1) on the driver's side dash and one (1) on the officer's side dash.

Y__N__

LIGHTBAR

One (1) Power Arc 83" light bar shall be included with the apparatus cab. The light bar shall be a model VM8506-6P and shall be mounted on the roof of the cab, towards the front, above the windshield.

Each light bar shall feature:

- Twelve (12) LED light pods

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- Red & clear hard coated lenses to provide extended life/luster protection against UV & chemical stresses
- Designed in accordance with NFPA Zone A requirements

Y__N__

LIGHTBAR ACTIVATION

The front upper light bar shall be activated through the master warning switch.

Y__N__

UPPER REAR WARNING LIGHTS

One (1) pair of Power Arc 210 LED lights shall be installed, one each side on the upper rear of the apparatus body. The dimensions of the lights shall be 7" x 7".

Y__N__

The driver side warning light shall be a Power Arc model LED210-RC, red LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model LED210-BC, blue LED's with clear lens.

Y__N__

UPPER SIDE FRONT WARNING LIGHTS

One (1) pair of Power Arc model #LED2180 red LED lights shall be installed, one each side on the upper portion of the body side, towards the front. The dimensions of the lights shall be 7" x 7".

Red Driver Side and Blue Officer Side Clear Lens.

Y__N__

UPPER SIDE REAR WARNING LIGHTS

One (1) pair of Power Arc 210 LED lights shall be installed, one each side on the upper portion of the body side, towards the rear of the body. The dimensions of the lights shall be 7" x 7".

Y__N__

The driver side warning light shall be a Power Arc model LED210-BC, blue LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model LED210-RC, red LED's with clear lens.

Y__N__

REAR WARNING LIGHT MOUNTING

The upper rear lights shall be mounted on the upper corners of the apparatus body, one on each side.

Y__N__

UPPER WING WARNING LIGHTS

One (1) pair of Power Arc model P14NT LED warning lights shall be installed, one each side one the front of the chassis cab, upper wing area. The dimensions of the lights shall be 3-3/4" x 6-5/8".

Y__N__

The driver side warning light shall be a Power Arc model P14NT-BC, blue LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model P14NT-RC, red LED's with clear lens.

Y__N__

INBOARD WARNING LIGHTS

One (1) pair of Power Arc model M90AT LED warning lights shall be installed, one each side one the front of the chassis cab, in the inboard warning light position. The dimensions of the lights shall be 4-1/2" x 7-7/8".

Y__N__

The driver side warning light shall be a Power Arc model M90AT-RC, red LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model M90AT-BC, blue LED's with clear lens.

Y__N__

OUTBOARD HEADLIGHT WARNING LIGHTS

One (1) pair of Power Arc model P14NT LED warning lights shall be installed, one each side one the front of the chassis cab, in the outboard position, below the headlights. The dimensions of the lights shall be 4-1/8" x 7-7/8".

Y__N__

The driver side warning light shall be a Power Arc model P14NT-RBC, red and blue LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model P14NT-RBC, red and blue LED's with clear lens.

Y__N__

INTERSECTION WARNING LIGHTS

One (1) pair of Power Arc P14SM LED lights shall be installed one each side towards the front of the chassis. The lights shall be recess mounted with a flange mounting.

Y__N__

The driver side warning light shall be a Power Arc model P14SM-RBC, red and blue LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model P14SM-RBC, red and blue LED's with clear lens.

Y__N__

UPPER MID-CHASSIS WARNING LIGHTS

One (1) pair of Power Arc P14SM LED lights shall be installed, one each side of the chassis cab, above the side window.

Y__N__

The driver side warning light shall be a Power Arc model P14SM-BC, blue LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model P14SM-BC, blue LED's with clear lens.

Y__N__

REAR MID BODY WARNING LIGHTS

One (1) pair of Power Arc P14SM LED lights shall be installed, one each side of the rear face of the body mid-way between the upper and lower warning lights.

Y__N__

The driver side warning light shall be a Power Arc model P14SM-RYC, red and amber LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model P14SM-RYC, red and amber LED's with clear lens.

Y__N__

LOWER MID BODY WARNING LIGHTS

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Two (2) pair of Power Arc P6BG LED lights shall be installed one each side of the apparatus, mid-body. The lights shall be recess mounted with a flange mounting.

Y__N__

The driver side warning light shall be a Power Arc model P6BG-RBC, red and blue LED's with clear lens and removeable black anodized aluminum brush guard.

Y__N__

The officer side warning light shall be a Power Arc model P6BG-RBC, red and blue LED's with clear lens and removeable black anodized aluminum brush guard.

Y__N__

LOWER REAR BODY WARNING LIGHTS

One (1) pair of Power Arc P6BG LED lights shall be installed one each side of the apparatus, towards the rear of the body.

Y__N__

The driver side warning light shall be a Power Arc model P6BG-RBC, red and blue LED's with clear lens and removeable black anodized aluminum brush guard.

Y__N__

The officer side warning light shall be a Power Arc model P6BG-RBC, red and blue LED's with clear lens and removeable black anodized aluminum brush guar.

Y__N__

LOWER REAR WARNING LIGHTS

One (1) pair of Power Arc LED210 lights shall be installed, one each side on the lower rear of the apparatus body. The dimensions of the lights shall be 7" x 7".

Y__N__

The driver side warning light shall be a Power Arc model LED210-BC, blue LED's with clear lens.

Y__N__

The officer side warning light shall be a Power Arc model LED210-RC, red LED's with clear lens.

Y__N__

LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The following specifications describe the low voltage electrical system on the specified rescue fire apparatus. The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA 1901 standards.

The apparatus shall have a Weldon V-MUX multiplexing system, to provide diagnostic capability. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The electrical system shall be pre-wired for computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics, troubleshooting, or program additions. There shall be a diagnostic display provided in the cab. The multiplexed system shall use twisted-pair shielded wire within the electrical system for noise reduction. The diagnostic display shall allow for fault and condition messages to be displayed. For superior system integrity, the networked system shall meet the following minimum requirement components:

1. Power management center
2. Load shedding power management
3. Solid-state circuitry
4. Switch input capability
5. Responsible for lighting device activation
6. Self-contained diagnostic indicators
7. Power distribution module
8. Diagnostic display for warning message indication
9. High Idle Function

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

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

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

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

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in an electrical junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified at least every two feet (2') by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of the applicable NFPA 1901 standards.

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

The electrical system shall include the following:

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

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

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is

applied, a "blocking right of way" system shall be automatically activated per requirements of the NFPA 1901 standard. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

Y__N__

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

The apparatus shall be electrically tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with the delivery documentation per requirements of the NFPA 1901 standard. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

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

2. Alternator performance test at idle:

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

3. Alternator performance test at full load:

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

4. Low voltage alarm test:

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

Y__N__

NFPA REQUIRED DOCUMENTATION

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

- a. Documentation of the electrical system performance tests required above.
- b. A written load analysis, including:
 - 1. The nameplate rating of the alternator.
 - 2. The alternator rating under the conditions.
 - 3. Each specified component load.
 - 4. Individual intermittent loads.

Y__N__

COMPARTMENT DOOR OPEN SYSTEM ON VISTA SCREEN

The cab and body main compartment doors shall be wired to illuminate an open-door indicator on the Weldon V-MUX Vista screen located in the cab when the parking brake is released. The indicator shall individually specify the door(s) that is(are) open. Accessories on the truck, such as light towers, hydraulic ladder rack, deck gun and small accessory doors shall also be wired to illuminate an indicator on the Vista screen when not stowed or open.

Y__N__

MASTER ELECTRIC SWITCH

One (1) battery disconnect switch shall be located conveniently to the driver of the apparatus. The switch shall disconnect the 12-volt power supply from the battery system.

Y__N__

AIR HORNS

Two (2) Grover brand Stutter Tone air horns shall be provided. The air horns shall be 6” in diameter and 24” long. Each horn shall feature flared ends offering a pleasing appearance.

Y__N__

AIR HORN LOCATION

The air horns shall be located on the front bumper. One (1) shall be mounted outboard on the driver side and one (1) outboard on the officer side, so as not to interfere with any other components on the bumper.

Y__N__

ELECTRIC TRAFFIC HORN AND AIR HORN SELECTOR SWITCH

One (1) selector switch shall be provided on the cab's dash that will allow the chassis steering wheel horn button to activate either the electric traffic horn or air horn system.

Y__N__

AIR HORN FOOT SWITCH

One (1) foot switch shall be installed to activate the air horn system on the officer's side of the floor.

Y__N__

PUMP ENCLOSURE LIGHTS

Two (2) LED work light shall be provided in the pump enclosure.

Y__N__

The control switch shall be mounted on the light head.

Y__N__

LIGHT MOUNTING LOCATION

The mounting location for the specified light shall be on the front edge of the chassis cab roof.

Y__N__

LED SCENE LIGHT

A Fire Tech FT-B-72-B brow light shall be provided and installed below the light bar. The light shall produce 30,096 lumens and be powder coated black.

Y__N__

The one (1) front scene light(s) shall activate via a virtual scene light switch located on the driver's and officer's Vista screen and by a switch on the pump panel. The switching shall be wired to operate in a three-way configuration to allow the light(s) to be controlled from either location regardless of switch position. The switches shall be labeled "FRONT SCENE".

Y__N__

BACKUP CAMERA

One (1) chassis supplied rear camera system shall be mounted on the rear of the vehicle. The camera component and cabling from the camera to the back of the cab shall be installed by the apparatus body manufacturer. All other components shall be installed by the chassis manufacturer.

Y__N__

PORTABLE LANTERN, p/n 44451

Two (2) Streamlight "Vulcan" LED portable hand light shall be installed, p/n 44451. The lantern shall include a mounting bracket, with 12-volt charger wired to the battery system to allow the light to recharge when not in use.

Y__N__

HANDLIGHT INSTALLATION

The location of the hand light installation shall be in the chassis cab. All components shall be installed as directed by the fire department.

Y__N__

INTERCOM SYSTEM

The vehicle shall be equipped with a Firecom 5100D intercom master station. The system comes standard with connections for up to six (6) positions. Additional positions can be added through daisy chaining.

This system can operate with one (1) mobile radio. Connection of this system to the mobile radio is not included, unless specified.

Y__N__

INTERCOM HEADSET

Two (2) UH-51 Under-The-Helmet-Headset shall be provided with the intercom system. The red PTT button activates radio transmit. The mic is always live for intercom communication. Appropriate for driver or officer positions.

Y__N__

INTERCOM PLUG IN MODULE

Two (2) HM-10 plug-in module for with any single-plug headset at interior positions in the apparatus shall be provided.

Y__N__

INTERCOM HEADSET

Three (3) UH-52 Under-The-Helmet-Headset shall be provided with the system. The black PTT button activates Mic for intercom communication ONLY. Appropriate for jump seat positions

Y__N__

INTERCOM PLUG IN MODULE

Three (3) HM-10 plug-in module for with any single-plug headset at interior positions in the apparatus shall be provided.

Y__N__

INTERCOM PLUG IN MODULE

One (1) PP-20 water resistant plug-in module for use with any single-plug headset at exterior positions shall be provided. Snap-tight spring-hinged lid protects against moisture. Appropriate for pump panel position.

Y__N__

HEADSET HANGER HOOK

Five (5) headset hanger hooks shall be provided and installed in the cab for storage of the headsets while not in use.

Y__N__

RADIO

One (1) fire radio and antenna shall be supplied by the customer and installed on the apparatus, by the apparatus manufacturer. The location shall be determined by the customer. The radio shall have interface to the specified intercom system.

Y__N__

12 VOLT POWER SOURCE

One (1) 12-volt power and ground connection rated at 30 amps shall be provided on the apparatus for the installation of a mobile two-way radio.

Switched Power, Thru Master

Y__N__

The power source shall be run through the chassis master battery switch and shall be deactivated when the master switch is in the "OFF" position.

Y__N__

RADIO SPEAKER

One (1) fire radio speaker shall be supplied and installed on the apparatus. The location shall be determined by the customer.

Y__N__

MARKER LIGHTS

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

Y__N__

MARKER LIGHTS

Two (2) Britax P/N L427.203.L12V flex rubber arm style LED Clearance lights shall be mounted on the rear of the body, one each side. These lights are in addition to the lights required by the DOT.

Y__N__

LICENSE PLATE BRACKET

One (1) Cast Products license plate bracket, model LP0005-1-C shall be provided at the rear of the apparatus. The bracket shall have a polished finish and LED light.

Y__N__

TAIL LIGHTS

One (1) pair of Whelen M6 LED tail/brake lights shall be provided. The rectangular 4"x6" lights shall be red with clear lens.

Y__N__

TURN SIGNALS

One (1) pair of Whelen M6 LED turn signals with populated sequential chevron arrow and clear lens shall be provided.

Y__N__

BACKUP LIGHTS

One (1) pair of Whelen Series M6 LED backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 4" x 6" and the lens color shall be clear.

Y__N__

TAIL LIGHT BEZELS

Individual black tail light bezels shall be supplied for mounting the rear stop, turn signal, and back-up lights located at the lower rear corners of the body on each side.

Y__N__

MID BODY LED TURN SIGNALS

One (1) pair of mid body LED turn signals shall be provided. The location of the turn lights shall be at mid-body near the rear wheel axle.

Y__N__

GROUND LIGHTS

There shall be two (2) Whelen 3SC0CDCR LED lights provided under the front bumper.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Y__N__

GROUND LIGHTS

There shall be two (2), one each side, Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the rub rail of the pump house.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Y__N__

GROUND LIGHTS

There shall be two (2), one each side, Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the rub rail, mid body.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Y__N__

GROUND LIGHTS

There shall be two (2) Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the rear step.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Y__N__

GROUND LIGHTS

There shall be two (2) Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the compartments, behind the rear wheels.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Y__N__

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

Y__N__

STEP LIGHT

Two (2) LED step light(s) with clear lens shall be installed.

Y__N__

REAR TAILBOARD LIGHTS

Two (2) LED step lights with clear lens shall be installed to illuminate the step surfaces at the rear of the apparatus body.

Y__N__

The step/walkway light switch shall be installed and wired to the parking brake.

Y__N__

LED SURFACE MOUNT SCENE LIGHT

Six (6) Fire Research model SPA260-Q20 surface mount light shall be installed. The light shall be mounted with four (4) screws to a flat surface. It shall be 5-7/8" high by 14.5" wide and have a profile of less than 1 3/4" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the light.

The lamp head shall have sixty (60) ultra-bright white LEDs, 56 for flood lighting and 4 to provide a spot light beam pattern. It shall operate at 12/24 volts DC, draw 13.8/6.9 amps, and generate 20,000 lumens of light. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamp head

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shall be powder coated. The LED scene light shall be for fire service use. The light housing shall be powder coated black.

Y__N__

One (1) scene light shall be located on the left side of the cab.

Y__N__

One (1) scene light shall be located on the right side of the cab.

Y__N__

Two (2) scene lights shall be located on the left side of the apparatus body.

Y__N__

Two (2) scene lights shall be located on the right side of the apparatus body.

Y__N__

The one (1) left side scene light shall activate via a virtual scene light switch located on the driver's and officer's Vista screen and by a switch on the pump panel. The switching shall be wired to operate in a three-way configuration to allow the light to be controlled from either location regardless of switch position. The switches shall be labeled "LEFT SCENE".

Y__N__

The one (1) right side scene light shall activate via a virtual scene light switch located on the driver's and officer's Vista screen and by a switch on the pump panel. The switching shall be wired to operate in a three-way configuration to allow the light to be controlled from either location regardless of switch position. The switch shall be labeled "RIGHT SCENE".

Y__N__

SCENE LIGHT

Two (2) Fire Research model SPA900-Q70-BLA surface mount light shall be installed. The light shall be mounted with four (4) screws to a flat surface. It shall be 6 3/4" high by 9" wide and have a profile of less than 1 3/4" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the light.

The light shall have twenty-four (24) white LEDs that generate a rated 4600 lumens at 12 or 24 volts DC. The lens shall redirect the light along the vehicle and out onto the working area. The light housing shall be aluminum with a black bezel.

Y__N__

Two (2) scene lights shall be located on the rear of the apparatus body.

Y__N__

The one (1) rear scene light shall activate via a virtual scene light switch located on the driver's and officer's Vista screen and by a switch on the pump panel. The switching shall be wired to operate in a three-way configuration to allow the light to be controlled from either location regardless of switch position. The switch shall be labeled "REAR SCENE".

Y__N__

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

Y__N__

TRAFFIC ARROW LIGHT

One (1) Power Arc Model #P14PSK-4 four (4) LED lamp unit shall be installed at rear of the apparatus body. The unit shall be supplied with controls and operational cable.

Y__N__

OVERALL DIMENSIONS

The vehicle shall have the following dimensions:

- Chassis wheelbase:
- Cab to axle dimension of chassis:
- Overall length:
- Overall width:
- Overall height

Y__N__

FLUID DATA PLAQUE

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

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Drive axle lubricant
- Power steering fluid
- Pump transmission lubrication fluid
- Other NFPA applicable fluid levels or data as required

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

Y__N__

DATA & WARNING LABELS

HEIGHT LENGTH & WEIGHT

A highly visible label indicating the overall height, length, and weight of the vehicle shall be installed in the cab dash area.

Y__N__

NO RIDE LABEL

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

Y__N__

TIRE PRESSURE LABEL

A label shall be placed in a visible area that indicates the front and rear tire pressure.

Y__N__

CAB SEATING POSITION LIMITS

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

Y__N__

HELMET WARNING TAG

One (1) label shall be installed in the cab, visible from each seating position. The label shall read "CAUTION: DO NOT WEAR HELMET WHILE SEATED." Helmets must be properly stowed while the vehicle is in motion according to the current edition of NFPA 1901.

Y__N__

REAR TOW EYES

There shall be two tow eyes furnished under the rear of the body. Tow eyes are to be constructed of 3/4" plate steel with a 3" I.D. hole, large enough for passing through a tow chain end hook.

Y__N__

The tow plates shall be painted black.

Y__N__

BUMPER

The chassis shall feature a heavy-duty bumper constructed from ASTM A36, 1/4" thick steel and painted primary job color. The bumper shall be 12" high by 102" wide with two-inch (2") flanges and chamfered corners.

Integral heavy-duty steel bumper "wings" shall extend from the bumper to the cab.

The bumper shall be mounted to a twenty-four inch (24") long chassis frame extension.

A contoured apron / gravel shield fabricated from NFPA compliant, slip-resistant polished aluminum shall enclose the area between the bumper and the cab.

Y__N__

FRONT BUMPER COMPARTMENT

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

Y__N__

HOSE WELL SECUREMENT

One (1) pair of Velcro straps shall be provided for the securement of the hose in the front bumper hose well.

Y__N__

FRONT BUMPER COMPARTMENT

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

Y__N__

BUMPER COMPARTMENT DOOR

One (1) raised aluminum tread plate door for the front bumper compartment shall be supplied. The door shall have a minimum 1" lips on all sides surrounding the entire compartment opening, a stainless-steel hinge at the rear and a latch to secure the compartment.

Y__N__

One (1) 27" long OnScene Solutions Night Axe LED light(s) shall be provided to illuminate the front bumper compartment(s) and contain 18 LEDs producing approximately 111 lumens per light (six LEDs and 37 lumens every 9"). The light stick shall be rated at 100,000 hours of service and shall be provided with a 5-year free replacement warranty. The light shall have a 5/8" LEXANTM polycarbonate tube enclosure for severe duty applications. The light stick shall be waterproof and be connectible via a jumper wire to add additional lights in series if required.

Y__N__

BUMPER COMPARTMENT DOOR SHOCK

A gas shock shall be supplied to hold the front bumper compartment door in the open position.

Y__N__

TOW EYES

Two (2) 3" tow eyes shall be mounted to the bumper extension through the front face of the bumper. The tow eyes shall be steel and shall be painted coated black.

Y__N__

HUB AND LUG NUT COVERS

The apparatus shall have chrome or stainless-steel hub and lug nut covers on the front and single rear axles.

Y__N__

TIRE PRESSURE INDICATOR, RWTG1235

There shall be a tire pressure indicator, p/n RWTG1235, at each tire's valve stem on the vehicle that shall indicate if there is insufficient pressure in the specific tire.

Y__N__

REAR MUD FLAPS

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

Y__N__

AMERICAN FLAG GRILL BAR AND LIGHT

There shall be stainless steel bars and stars provided and installed on the black grill. The stainless-steel bars and stars will be overlaid on top of the existing grill to give it a 3D appearance.

Behind the grill shall be blue LED lights to back light the flag. There shall be a total of eight (8) Whelen TLIB solid blue lights provided and installed. The lights shall be placed appropriately to fill the entire back of the grill in blue.

Stainless stars and bars installed over the chassis supplied grill.

Behind the grill shall be blue LED lights to back light the flag. There shall be a total of eight (8) Whelen TLIB solid blue lights provided and installed. The lights shall be placed appropriately to fill the entire back of the grill in blue.

Y__N__

INTERIOR CABINET

There shall be one (1) rear facing cabinet installed behind the engine enclosure. The cabinet shall be constructed of smooth aluminum plate with minimum interior dimensions of 15" High x 36" Wide x 18" Deep.

A cargo net designed to restrain the contents shall be installed on the cabinet.

Y__N__

The cabinet's exterior finish shall match the interior finish of the chassis cab.

Y__N__

The cabinet's interior shall have a natural finish.

Y__N__

CAB LIFT CONTROL LOCATION

The cab lift controls for tilting the cab shall be recess mounted in the forward wall inside the left front compartment or behind the pump compartment left side upper access (gauge) panel. Proper operation and warning labels shall be installed adjacent to the controls.

Y__N__

AIR SHORELINE CONNECTION

One (1) compressed air inlet fitting shall be provided for connection to an external air source to maintain the air brake pressure. The air inlet shall have a check valve installed to prevent air from escaping from the air storage tanks on the chassis.

Y__N__

AIR INLET SHUTOFF VALVE

One (1) shutoff valve designed to isolate the air inlet fitting shall be installed adjacent to the air inlet fitting. The 1/4 turn valve shall be labeled accordingly.

Y__N__

HALE RSD/MGA SINGLE STAGE PUMP

A Hale model RSD/MGA, single stage pump shall be designed to mount at rear of apparatus with a mid-ship mounted split-shaft power divider. The power divider shall be driven by a driveline from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance.

The entire pump, suction and discharge passages shall be hydrostatically tested to a pressure of 350 PSI. The pump shall be tested at the pump manufacturer's factory to the performance specs as outlined by the applicable sections of the NFPA 1901 standard. The pump shall be free from objectionable pulsation and vibration.

PUMP BODY

The pump body and related parts shall be cast iron. All metal moving parts in contact with water shall be of high-quality bronze or stainless steel.

IMPELLER

The pump shall have one impeller. The pump body shall have two opposed discharge outlet volute cutwaters to eliminate radial unbalance. Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined and individually balanced.

The vanes of the impeller intake eyes shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and shall be of wrap-around double labyrinth design for maximum efficiency.

PUMP SHAFT

Pump shaft shall be rigidly supported by bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel to be super-finished with galvanic corrosion protection for longer shaft life. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Y__N__

PUMP TRANSMISSION AND MID-SHIP POWER DIVIDER

The rear mounted pump transmission shall be mounted directly to the fire pump. The mid-ship mounted power divider shall be of sufficient size to withstand 16,000 foot pounds of torque from the engine. The pump transmission and power divider shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The mid-ship pump drive shafts shall be of heat-treated chrome nickel steel and be at least 2-3/4" in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.

All gears in the rear pump transmission and in the mid-ship power divider shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life. An accurately cut spur design shall be provided to eliminate all possible end thrust.

Y__N__

PUMP MOUNTING

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

Y__N__

DRIVELINES

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

Y__N__

1500 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Hale model RSD/MGA midship mounted with a rated capacity of 1500 GPM. The pump shall meet NFPA 1901 requirements.

The pump shall be certified to meet the following deliveries:

- 1500 GPM @ 150 PSI
- 1500 GPM @ 165 PSI
- 1050 GPM @ 200 PSI
- 750 GPM @ 250 PSI

Y__N__

GATED 6" INTAKE -- REAR CENTER

One (1) rear center 6" gated suction intake shall be provided. Intake shall be gated with an Akron Model 7960 electrically operated 6" butterfly valve and shall have control at the pump operator's panel. The valve operating mechanism shall prevent movement of the valve from the fully closed position to the fully open position or vice versa, in less than three seconds. The valve control shall have a colored identification label.

There shall be an adjustable suction relief/dump valve installed on the supply side of the valve.

A inlet fitting with 6" NST thread shall be provided, complete with a removable strainer screen.

Y__N__

An Innovative Controls ¾" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

Y__N__

A lightweight aluminum, 30 degree adapter shall be provided. Threads shall be 5" Storz with lugs with manual locks x 6" swivel female NST.

Y__N__

A lightweight aluminum locking 5" Storz cap shall be provided. A chain or cable attachment shall be also supplied.

Y__N__

FIRE PUMP MECHANICAL WATER SEAL

The Hale fire pump shall have a high quality, self-adjusting, maintenance free mechanical seal.

Y__N__

ELECTRIC/PNEUMATIC PUMP SHIFT

The pump shift shall be an air operated and shall incorporate an air cylinder with an electric actuating switch to shift from road to pump and back. The power shift control valve shall be mounted in the cab. The fire pump-shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position.

The system shall include a nameplate indicating the chassis transmission shift selector position to be used for pumping and located so that it can be easily read from the driver's position.

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

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

Y__N__

FIRE PUMP ANODE

One (1) Hale Fire Pump Alloy Anode(s) shall be installed to reduce corrosion. The anode shall be a bolt-in or screw-in type and easily replaceable.

Y__N__

PRIMER – AUTOMATIC

An automatic fire pump priming system shall be provided and installed. The system shall be oil-less type and environmentally safe. Once engaged, the system shall be fully automatic and not require any action from the pump operator/engineer when pump draft is lost. This feature provides an additional safety margin by maintaining pump flow from the available water source automatically during drafting operations. When air is introduced during a drafting operation from conditions such as whirlpools or turbulence from porta-tank refill operations, the priming system shall automatically engage to remove the air and stabilize water flow and pump pressure. For additional safety, the entire system shall operate at less than 70dBA of ambient noise.

The priming system shall engage automatically whenever the pump discharge falls below five (5) psi and shall remain engaged until a pump prime has been achieved. The priming system shall automatically disengage when a positive pump discharge pressure has been established. The electrical current draw from the chassis batteries shall not exceed four (4) amps at any given time of operation and allow for unlimited run time without causing an overheat condition for of any of the system components.

A single engagement switch shall be provided on the pump control panel that will allow the operator to engage the automatic pump priming system. There shall be a light provided on the pump control panel to indicate when the system is engaged. The pump shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. The priming system shall comply with applicable sections of NFPA standards.

Y__N__

PRIMER CONTROL

A rocker switch control shall be provided on the pump operator's panel, for the main pump primer control.

Y__N__

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING

One (1) Fire Research InControl series TGA400 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high

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

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

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

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

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

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

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

response and a push button to return the engine to idle.

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

Y__N__

PUMP ANODES

There shall be sacrificial, zinc anodes in the pump steamer ports which shall protect the pump and piping from electrolysis. These anodes shall also act as screens.

Y__N__

PUMP PLUMBING SYSTEM

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

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

Y__N__

FIRE PUMP MASTER DRAIN

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

ADDITIONAL LOW POINT DRAINS

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

Y__N__

STAINLESS STEEL INTAKE MANIFOLD

The suction manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute. The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty , flexible Victaulic coupling.

The stainless-steel manifold assembly shall have a minimum ten (10) year warranty.

Y__N__

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold assembly shall be fabricated with minimum of Schedule #10 Type 304 stainless steel. All threaded fittings shall be a minimum of Schedule #40 stainless steel. The

discharge manifold assembly shall have radiused sweep elbows to minimize water turbulence. The manifold shall be welded and pressure tested prior to installation. The stainless-steel manifold inlet shall be attached to the pump discharge and have additional brackets as required to support the discharge manifold, valves and related components.

The stainless-steel manifold assembly shall have a minimum ten (10) year warranty.

Y__N__

PLUMBING SYSTEM

The plumbing system shall be unpainted.

Y__N__

HOSE THREADS

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

Y__N__

WATER TANK TO PUMP LINE

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

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

Y__N__

The tank to pump valve shall be controlled at the pump operator's panel.

Y__N__

The valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever with aircraft cable control. The lever shall be locking with a polished finish. The lever shall have a 6" stroke for ease of operation.

The aircraft cable used to control the valve from the lever shall be furnished with 7/8" bulkhead and 5/16" thread on both ends. The cable end nearest the valve will have a 5/16" swivel u-joint. This cable allows for ease of maintenance and operation.

The lever bell crank shall be enclosed in a "common" aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

The control shall be properly identified with a color-coded name plate.

Y__N__

FIRE PUMP TO WATER TANK FILL LINE

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

Y__N__

The valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever with aircraft cable control. The lever shall be locking with a polished finish. The lever shall have a 6" stroke for ease of operation.

The aircraft cable used to control the valve from the lever shall be furnished with 7/8" bulkhead and 5/16" thread on both ends. The cable end nearest the valve will have a 5/16" swivel u-joint. This cable allows for ease of maintenance and operation.

The lever bell crank shall be enclosed in a "common" aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

The control shall be properly identified with a color-coded name plate.

Y__N__

FIRE PUMP DRIVESHAFTS AND INSTALLATION

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

Y__N__

UNDERWRITERS LABORATORIES FIRE PUMP TEST

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

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

Y__N__

FIRE PUMP TEST LABEL

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

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

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

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

Y__N__

INTAKE RELIEF/DUMP VALVE

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

Discharge side of the intake relief valve shall be plumbed away from the pump operator.

Y__N__

FIRE PUMP COOLING

The fire pump shall be equipped with 3/8" cooling line from the pump to the water tank. This pump cooling re-circulation line shall be controlled at the pump panel by a quarter-turn in-line ball valve with mini-twist control handle. The control handle shall be labeled "PUMP COOLING". There shall be a check valve installed in the pump cooler line to prevent tank water from back flowing into the pump when it is not in use.

Y__N__

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually operated quarter-turn in-line ball valve with mini-twist control handle mounted at the pump panel shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator cooling hose. The system shall provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant. The unit shall be installed by the chassis manufacturer and connected to the plumbing system by the fire apparatus manufacturer.

The control shall be identified with a chrome bezel label assembly labeled, "AUXILIARY ENGINE COOLER".

Y__N__

REAR LEFT SIDE 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on rear left side of apparatus to supply the fire pump from an external water supply. The control valve shall be a quarter turn ball valve and shall have 2-1/2" NST female thread of brass, chrome plated, or stainless-steel material. The intake shall be provided with a removable screen and equipped with a 3/4" drain and bleeder valve, controlled at the base of the pump panel or rear panel of apparatus.

Y__N__

CITY OF MAPLEWOOD (FIRE DEPARTMENT)

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

Y__N__

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

Y__N__

The valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

Y__N__

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

Y__N__

1-1/2" DISCHARGE -- FRONT LEFT SIDE BUMPER

One (1) 1-3/4" discharge shall be installed at left side front bumper area with a swivel adapter with 1-1/2" NST male hose threads. The quarter turn ball valve shall be controlled on pump panel. The valve control shall be provided with an engraved nameplate label.

The plumbing shall be flexible hose with abrasion resistant support mountings.

Y__N__

A Class 1 automatic type 3/4" bleeder valve shall be installed.

Y__N__

The hose connection for the front discharge shall be swivel type located above the front bumper deck level.

Y__N__

The specified valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8" bulkhead both ends, 5/16" threaded ends and will also require a 5/16" swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

REAR STEP/BUMPER -- 1-1/2" CROSSLAY DISCHARGES

Two (2) 1-3/4" rear step/bumper crosslays installed at the rear step/bumper area. The discharges shall be supplied by 2" quarter turn full flow ball valves at the pump panel. The discharges shall terminate with a swivel with 2" NPT female x 1-1/2" male NST hose threads. The swivels shall be mounted at the floor of hose bed.

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

Each crosslay hose bed shall be constructed of smooth aluminum with a minimum capacity of 200 feet of fire department supplied 1-3/4" diameter double jacket hose and nozzle.

The hose bed shall be constructed with slots integrated into the hose bed. A full width removable aluminum hose bed partition shall be installed in the center of the bed. The hose bed openings shall be equipped with hose and nozzle securement devices to comply with applicable NFPA standards.

Y__N__

A Class 1 automatic type 3/4" bleeder valve shall be installed.

Y__N__

BI-FOLD CROSSLAY HINGED COVER

The crosslay hose bed shall be equipped with a double bi-fold aluminum diamond plate hinged cover. The bi-cover shall have rubber bumpers, latching devices, and lift up handle on each end of the cover.

The walking surface on the cover shall be a NFPA #1901 compliant surface, with a 1" wide yellow or orange strip designating the outside perimeter of the walking or standing area.

Y__N__

The specified valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8" bulkhead both ends, 5/16" threaded ends and will also require a 5/16" swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

Two (2) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

FRONT OF BODY SPEEDLAY -- 1-1/2" DISCHARGE

One (1) 1-3/4" pre-connect hose speedlay shall be installed at the front of body, controlled with quarter turn 2" diameter ball valve at the rear mount pump panel. The outlet shall be equipped 2" NPT female swivel x 1-1/2" male NST hose threads.

The speedlay hose bed shall have smooth aluminum sides and slots integrated into the hose bed floor. The hose bed shall have a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with hose and nozzle provided by fire department.

The hose bed openings shall be equipped with hose and nozzle securement devices to comply with applicable NFPA standards.

Located in L1/R1 with 150' of 1.75" hose.

A Class 1 automatic type 3/4" bleeder valve shall be installed.

Y__N__

Y__N__

SLIDE OUT TRAY FOR PRE-CONNECTED HOSE BEDS

The 1-3/4" pre-connect hosebed(s) shall be equipped with a "U" shaped aluminum hose tray. The unit shall be equipped with pull out hand holes and retaining devices to secure the tray, nozzle, and hose in transit.

Y__N__

The specified valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8" bulkhead both ends, 5/16" threaded ends and will also require a 5/16" swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

EQUIPMENT SECUREMENT

The hose bed openings shall be equipped with hose and nozzle securement devices to comply with applicable NFPA standards.

Y__N__

LEFT REAR HOSEBED -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed below the left rear hosebed floor area and controlled by a quarter turn ball valve on the rear mount pump panel. The discharge shall have 2-1/2" NPT x 2-1/2" NST male hose thread swivel elbow protruding up into the hosebed similar to a crosslay. An engraved nameplate label shall be provided adjacent the control handle.

Y__N__

A Class 1 automatic type 3/4" bleeder valve shall be installed.

Y__N__

The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8" bulkhead both ends, 5/16" threaded ends and will also require a 5/16" swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

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

One (1) 2-1/2" discharge shall be installed on the left side of the rear center pump panel and shall be controlled by a quarter turn ball valve on the rear mount pump control panel. The discharge shall have 2-1/2" NPT x 2-1/2" NST male hose threads. An engraved nameplate label shall be installed adjacent the valve control handle.

Y__N__

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

Y__N__

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

Y__N__

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

Y__N__

The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8" bulkhead both ends, 5/16" threaded ends and will also require a 5/16" swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

REAR CENTER PUMP PANEL LEFT CENTER -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed to the left of center on the rear center pump panel and shall be controlled by a quarter turn ball valve on the rear mount pump control panel. The discharge shall have 2-1/2" NPT x 2-1/2" NST male hose threads. An engraved nameplate label shall be installed adjacent the valve control handle.

Y__N__

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

Y__N__

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

Y__N__

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

Y__N__

The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8” bulkhead both ends, 5/16” threaded ends and will also require a 5/16” swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator’s control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

REAR CENTER PUMP PANEL RIGHT SIDE - 3" DISCHARGE

One (1) 3" discharge shall be installed on the right side of the rear center pump panel and shall be controlled by a quarter turn ball valve on the rear mount pump control panel. The discharge shall have 3" NPT x 3" NST male hose threads. An engraved nameplate label shall be installed adjacent the valve control handle.

Y__N__

An Innovative Controls ¾” cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

Y__N__

One (1) lightweight aluminum elbow with 30-degree slant shall be provided. Threads shall be 5" Storz with lugs and manual locks x 3" female swivel NST with rocker lugs.

Y__N__

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

Y__N__

The specified valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control with a manual slow-close device. The lever banks shall be locking with a polished finish. They shall have a 6” stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8” bulkhead both ends, 5/16” threaded ends and will also require a 5/16” swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator’s control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

3" MONITOR DISCHARGE

One (1) 3" discharge shall be piped to the top of the body with 3" NPT male threads provided. The pipe shall be equipped with Victaulic couplings (if necessary) and shall be properly secured to prevent movement when a monitor is attached. The quarter turn ball valve shall be controlled on pump panel.

A color-coded nameplate label shall be provided adjacent the valve control handle.

Y__N__

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

Y__N__

The specified valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.

Y__N__

The valve control shall be a sealed lever bank type with aircraft cable control with a manual slow-close device. The lever banks shall be locking with a polished finish. They shall have a 6" stroke for ease of operation.

The aircraft cable that is used to control the valve from the lever bank shall be furnished with 7/8" bulkhead both ends, 5/16" threaded ends and will also require a 5/16" swivel u-joint that unhooks from the ball valve. This cable will be used for ease of maintenance and operation.

The lever bank bell cranks shall be enclosed in an aluminum box that is attached below the pump operator's control panel.

The aluminum box shall be weather resistant so that dust is not allowed to enter the operator area through the pump control panel.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

2000 GPM REMOTE CONTROLLED MONITOR

Task Force Tips Monsoon RC, model # Y4-E11A remote controlled monitor shall be installed. The monitor shall operate with 12- or 24-volt direct current and controlled by a monitor mounted switch panel with functions that control rotation, elevation, nozzle patterns, programmable park and oscillate, auxiliary 1 and auxiliary 2.

The electrical components for the monitor shall be waterproof and utilize current limiting and position encoders to protect the drive train at the ends of travel. Monitor shall have thirty feet of

four conductor ultra-flex robotic power cable and include a unique cable guide for 450 degrees of monitor rotation. A six-pin electrical connection for a TFT remote control nozzle shall be provided. The monitor shall be compatible with optional wired and wireless control stations and monitor position display. The monitor shall be equipped with manual override knobs for use in the event of power failure. The motors and knobs control stainless steel worm gears for rotation and elevation adjustment.

The monitor shall have the following capabilities:

- Full horizontal rotation with travel 225 degrees left and right of center
- 135 degrees of vertical travel with stops at 90 degrees above horizontal and 45 degrees below horizontal
- Field changeable rotation stops at 45, 90 and 135 degrees left and/or right of center and 45 degrees above and/or 30 degrees below horizontal
- Flow capability of 2000 GPM with friction loss no more than 16 psi
- Maximum operating pressure of 200 PSI

For resistance to corrosion the monitor shall be constructed from hard coat anodized aluminum with a silver powder coat interior and exterior finish. A threaded port for an optional pressure gauge shall be provided. The unit shall have a unique serial number and be covered by a written five-year warranty.

The monitor shall be designed with a unique waterway that minimizes the path of travel, reduces friction loss and turbulence, and produces a far-reaching water stream. The monitor shall be configured with a 3" ANSI 150 flange inlet and 3-1/2" male NH outlet.

Y__N__

WIRELESS REMOTE MONITOR CONTROL STATION

Task Force Tips wireless control station YE-RF-900 for Monsoon, Hurricane, and Tornado series remote control monitors shall be provided.

The wireless transmitter shall be designed for remote usage and operate up to 500 feet away from the vehicle mounted base unit antenna/receiver. The remote control includes switches to control horizontal rotation, vertical elevation and nozzle stream pattern. The switch enclosure shall be weatherproof. The handheld unit shall have four (4) Lithium AA batteries and a storage cradle which shall be installed in a weather protected area. The included receiver antenna shall be installed in an unobstructed open area.

Y__N__

REMOTE ELECTRIC MASTER STREAM NOZZLE

One (1) Task Force Tips Master Stream 1500, model # M-ERP1500-NN automatic nozzle with electrically operated pattern control shall be provided. The nozzle design shall allow for straight stream through dense wide fog patterns.

The nozzle shall have a flow capability of 300 to 1500 GPM at a user adjustable pressure rating of 70 PSI to 120 PSI. User shall have the ability to change nozzle operating pressure by means of an adjustment knob with pressure indicator on the front of the nozzle.

The electric drive unit shall develop over 400 pounds of torque, be enclosed in a waterproof cast aluminum housing and include a manual override device in the event the power source fails. The unit shall be compatible with 12 or 24 volt power systems and require no more than a 3 amp power draw and include a 24" connection cable.

Nozzle stream shaper actuator shall have position encoder for smooth transition between straight stream and fog pattern with fine stream adjustment.

For corrosion resistance and durability, the nozzle and actuator shall be constructed from hard coat anodized aluminum alloy, include a protective rubber bumper with fog teeth, laser engraved serial number, and reflective labeling.

The nozzle shall have a 3-1/2" female NH swivel rocker lug coupling and a flow range of 300-1500 GPM at a user adjustable pressure rating of 70 PSI to 120 PSI. A waterproof six-pin electrical connection for use with TFT remote control monitors shall be included.

Y__N__

REMOTE CONTROL TELESCOPING MONITOR PIPE

One (1) Task Force Tips model # XGA48VP-RP 4" electrically telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" using panel mounted switches. These switches shall control a 12-volt motor and be capable of moving the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees. The motor shall be weatherproof in design and have an accessible manual override control for use in the event power failure occurs. A 10' power cable shall be supplied for connection from the panel switches to the motor.

A sensor shall be located on the waterway that signals a 12-volt indicator light installed in the cab to illuminate to indicate that the monitor is raised.

The aluminum riser shall have a 4" waterway; hardcoat anodized finish and be furnished with a 4" Victaulic inlet coupling and a TFT Code RPM male connection for a TFT remote control monitor with TFT Code RPF female inlet.

Y__N__

ELECTRIC REWIND HOSE REEL

One (1) Hannay unpainted aluminum hose reel with leak proof ball bearing swing joint, adjustable friction brake, electric rewind shall be installed. The reel shall be plumbed with wire reinforced, high-pressure hose coupled. The reel shall be bolted to a mounting system for easy service or removal.

The hose reel is to be mounted in the front bumper extension.

Y__N__

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The hose reel shall be installed within an aluminum tread plate enclosure for protection against cold weather. Access to the hose and nozzle shall be through a hinged door.

Y__N__

A push button hose reel rewind switch shall be installed to control the electric rewind hose reel. The exact location shall be determined at construction.

Y__N__

One (1) 1" discharge shall be provided and piped from the fire pump to the hose reel with flexible high-pressure hose. The quarter turn ball valve shall be controlled on pump panel. A color-coded nameplate label shall be provided near the valve control handle.

Y__N__

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift, to open and push down, to close.

Y__N__

The specified hose reel shall be piped to the normal pressure side of the fire pump.

Y__N__

One (1) Akron 8000 Series one-inch (1") valve with a stainless ball shall be supplied.

Y__N__

The valve shall be equipped with a KZCO KZ Valve Model EH-2 12-volt electric actuator. The valve control shall be a TSL controller with indicator light provided. When the valve is open, the indicator light shall illuminate. When the valve is closed the indicator light shall be off.

The control shall be properly identified with a color-coded name plate.

Y__N__

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

Y__N__

Three (3) 50-foot lengths (150') of 3/4" water hose with pin lug couplings and 800 PSI working pressure shall be provided and mounted on the specified hose reel.

Y__N__

One (1) stainless steel four-sided captive type roller assembly shall be provided. The location of the captive rollers shall be:

Y__N__

BOOSTER REEL AIR BLOWOUT

One (1) air blow out shall be provided for the booster reel. The air supply must be supplied from the chassis air system and be connected to a quarter turn valve located on the pump operator's panel.

Y__N__

ELKHART BUILT-IN FOAM EDUCATOR

One (1) Elkhart Model #240-95P complete built-in foam educator shall be provided. This educator shall be installed permanently within the pump panel compartment. The foam/water solution shall

flow through the eductor at 95 GPM while operating at an inlet pressure of 200 PSI. The foam eductor shall have a 2" NPT female inlet and a 2" NPT female outlet. The construction of the eductor and valves shall be cast brass. The tee handles and rod guides shall be chrome plated.

Y__N__

1" FOAM TANK CONTROL - CLASS A

One (1) Class A foam tank shall be plumbed with 1" valve and corrosion resistant hose from the foam tank to the foam inlet of the foam system. The manually opened valve shall be provided behind the pump panel with a label.

Y__N__

INTEGRAL CLASS A FOAM TANK - 30 GALLON

One (1) thirty (30) gallon Class A foam tank shall be installed within the water tank. The non-corrosive foam tank shall meet applicable sections of NFPA standards. The foam concentrate tank shall be provided with sufficient wash partitions so that the maximum dimension perpendicular to the plane of any partition shall not exceed 36 inches. The swash partition(s) shall extend from wall to wall and cover at least 75 percent of the area of the plane of the partition.

The foam concentrate tank shall be provided with a fill tower or expansion compartment having a minimum area of 12 square inches and having a volume of not less than 2 percent of the total tank volume. The fill tower opening shall be protected by a completely sealed air-tight cover. The cover shall be attached to the fill tower by mechanical means. The fill opening shall be designed to incorporate a 1/4-inch removable screen and shall be located so that foam concentrate from a five (5) gallon container can be dumped directly to the bottom of the tank to minimize aeration without the use of funnels or other special devices.

The foam tank fill tower shall be equipped with a pressure/vacuum vent that enables the tank to compensate for changes in pressure or vacuum when filling or withdrawing foam concentrate from the tank. The pressure/vacuum vent shall not allow atmospheric air to enter the foam tank except during operation or to compensate for thermal fluctuations. The vent shall be protected to prevent foam concentrate from escaping or directly contacting the vent at any time. The vent shall be of sufficient size to prevent tank damage during filling or foam withdrawal.

A color-coded label or visible permanent marking that reads "FOAM TANK FILL" shall be placed at or near any foam concentrate tank fills opening. A label shall be placed at or near any foam concentrate tank fill opening that specifies the type of foam concentrate the system is designed to use. Any restrictions on the types of foam concentrate that can be used with the system shall also be stated, and a warning message that reads "WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM."

The foam concentrate tank outlet connection shall be designed and located to prevent aeration of the foam concentrate and shall allow withdrawal of 80 percent of the foam concentrate tank storage capacity under all operating conditions with the vehicle level.

Y__N__

The foam tank(s) shall be fabricated by PRO POLY, INC.

Y__N__

FOAM TANK DRAIN -- UNDER TANK

The foam tank shall have one (1) 1" gate valve drain provision installed.

Y__N__

CLASS A FOAM TANK GAUGE

One (1) Fire Research TankVision Pro model WLA360-A00 foam tank indicator kit shall be installed at the operator's panel. The kit shall include an electronic indicator module, a pressure sensor, a 10-ft sensor cable and a tank vent. The indicator shall show the volume of Class A foam concentrate in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon, and have a distinctive green label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low foam warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

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

Y__N__

FOAM SYSTEM DESIGN AND PERFORMANCE REQUIREMENTS

The proportioning system shall be capable of proportioning foam concentrate in accordance with the foam concentrate manufacturer's recommendations for the type of foam concentrate used in the system over the system's design range of flow and pressures. The foam proportioning system water flow characteristics and the range of proportioning ratio shall be specified as noted herein. The latest foam system shall be in compliance with applicable NFPA standards as it relates to this specified system

Plumbing and Strainer

The foam concentrate supply line shall be non-collapsible. A means shall be provided to prevent water back flow into the foam proportioning system and the foam concentrate storage tank.

A strainer or filter shall be provided on the foam concentrate supply side of the foam proportioner to prevent any debris that might affect the operation of the foam proportioning system from entering the system. The strainer assembly shall consist of a removable straining element, housing, and retainer. The strainer assembly shall allow full flow capacity of the foam supply line.

Flushing

A foam concentrate system flush line shall be provided as required by the foam system manufacturer. A means shall be provided in the flush line to prevent water backflow into the foam concentrate tank or water tank during the flushing operation.

Foam System Controls

The foam proportioning system operating controls shall be located at or near the pump operator's position and shall be clearly identified. Foam proportioning system shall be provided with accessible controls to completely flush the system with water according to the manufacturer's instructions.

Labels and Instructions

An instruction plate shall be provided for the foam proportioning system that include, at a minimum, piping schematic of the system and basic operating instructions. Labels that are marked clearly with the identification and function shall be provided for each control, gauge, and indicator related to the foam proportioning system.

A label shall be provided on the pump operator's panel that identifies the type of foam concentrate that the foam proportioning system is designed to use. It shall also state the minimum/maximum foam proportioning rate at the minimum/maximum foam proportioning rated system flow and pressure.

Two (2) copies of an operations and maintenance manual shall be provided. They shall include a complete diagram of the system together with operating instructions and details outlining all recommended maintenance procedures.

Foam System Testing

The accuracy of the foam proportioning system shall be certified by the foam equipment manufacturer and also tested by the installer prior to delivery of the apparatus in compliance to NFPA standards.

Y__N__

REAR MOUNT PUMP ENCLOSURE

The rear mount pump and plumbing installation shall be located in the rear compartment of the apparatus body. All NFPA required gauges and controls shall be furnished on a panel furnished with the pump or installed on a panel fabricated by the apparatus body builder.

Labels shall be furnished for the discharges and intakes and for other controls and indicators.

Located within the module shall be:

- 16. Electric primer.

- 17. Pump area service lights.
- 18. All gauge piping and hoses.
- 19. Intake dump valve.
- 20. Pressure control device and throttle control.
- 21. Pump engagement lights.
- 22. Engine instruments.
- 23. Master intake and discharge gauges.
- 24. Tank fill control.
- 25. Tank-to-pump control.

Y__N__

PUMP PANEL LOCATION - LEFT SIDE BEHIND REAR WHEELS

The pump operator's instrument panel for the rear mount pump shall be located at the left side apparatus body compartment behind the rear wheels.

Y__N__

PUMP CONTROL PANEL - REAR MOUNT - SEALED LEVER BANK

The rear mount pump operator's panel shall be constructed to house the sealed lever banks and related controls.

Y__N__

PUMP CONTROL PANEL ROLL-UP DOOR -- LEFT SIDE

The rear mount pump operator's panel shall be located in the compartment behind the rear wheels on the left side of the apparatus body. A roll-up style compartment door shall be provided for the door opening and shall be constructed of anodized aluminum slats.

Y__N__

LogicColor™ PUMP CONTROL PANEL - REAR MOUNT

The pump module shall be furnished with a durable, high-impact laminated .250” neutral gray control panel that graphically tracks each pump discharge control on the panel with a top-down perspective schematic of the apparatus depicting the location each discharge on the apparatus. Separate colorized graphical lines shall be used to graphically connect the actual discharge control on the panel to the imprinted schematic showing the location of the discharge.

The graphics used on the panel shall be function and easy-to-read. The connection points between the discharge controls on the panel and the schematic shall include all pump discharges; crosslays/speedlays; front and rear discharges; deck guns and hose reels.

The high-impact panel shall be affixed on top of a .125” thick aluminum panel and secured to the pump module. The control panel shall be furnished with a .250” stainless steel piano-style hinge and three (3) durable “lift-and-twist” latching mechanisms that will allow the panel to be dropped down for maintenance access. The underside of the panel shall be furnished with a 360 rubberized gasket affixed to the aluminum plate to prevent the introduction of moisture and water into the underside of the panel.

The pump control panel shall be designed in such a way as to ensure inclusion of other specified critical control points on the apparatus, including but not limited to the pressure governor, foam system, lights, air-horn button, etc.

Y__N__

REAR MOUNT PUMP ACCESS DOOR - UPPER REAR

A lift up pump panel door shall be provided on the upper rear of the rear mount pump enclosure that allows access to the fire pump and plumbing. The door shall be constructed of smooth aluminum for application of reflective chevron material and equipped with stainless steel hinges.

The hinged door shall be as large as practical and be equipped with a latch and dual gas operated door openers.

Y__N__

REAR MOUNT PUMP AND PLUMBING ACCESS

The rear mount pump enclosure and plumbing area shall be accessible through removable panels, with stainless steel bolts in rear side compartment walls.

Y__N__

LABELS

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

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

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

Y__N__

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

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

All labels, instruction panels and warnings shall be installed on the pump panel for safe operation of the pumping equipment and controls using Innovative Controls labels and bezel assemblies. These bezel assemblies will be used to identify intake and discharge controls with color and verbiage. The label and bezel assemblies are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel

with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards

Y__N__

REARMOUNT PUMP PANEL LIGHTS

Two (2) Grote #01-61F8-70 low profile LED lights shall be installed to properly illuminate the pump operator’s panel. The lights shall be controlled by a switch located on the pump operator’s panel.

Y__N__

MASTER DISCHARGE AND INTAKE GAUGES

Two (2) 6" diameter Class 1 discharge pressure and intake gauges (30"-0-600 PSI) shall be provided. The face of the gauge shall be a **BLACK** dial with white letters. The gauges will be located on the pump instrument panel.

The master gauges shall be fully filled with pulse and vibration dampening interlube to lubricate the internal mechanisms. This shall prevent lens condensation and will insure proper operation to minus 40 degrees F. The case shall be temperature compensated with an internal breathing diaphragm to permit filled cases and to allow a rigid lens with a distortion free viewing area. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an isolation Sub-Z diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

Y__N__

TEST TAPS

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

Y__N__

WATER TANK GAUGE

One (1) Fire Research TankVision Pro model WLA400-A00 tank indicator kit shall be installed on the pump panel. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty. The indicator shall have an output for an audio alarm, warning indicator signal, valve/actuator control signal and an input for a silence button.

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

Y__N__

WATER TANK VOLUME REMOTE INDICATOR

Three (3) Fire Research MaxVision model WLA280-A00 tank remote indicators shall be installed, one remote indicator on each side of the apparatus and one remote indicator on the rear of the apparatus. The indicator shall show the volume of water in the tank on ninety-six (96) easy to see super bright tri-color LEDs. The indicator case shall be waterproof, manufactured of polycarbonate material with an integrated lens. The package includes a rubber gasket.

The remote indicator shall receive input information over a datalink from a Fire Research TankVision model WLA300-A00 or WLA400-A00 tank primary indicator. The remote indicator shall indicate the level as a single color in Red for 25% or less, Amber color for up to 50% volume, Blue color for up to 75% volume and Green color for up to 100% volume. When the level reaches 25%, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three times. It shall have the program capability to adjust the brightness level for day time and nighttime viewing.

Y__N__

AIR HORN PUSH-BUTTON

One (1) push button with a label shall be installed on the pump instrument panel to operate the air horns.

Y__N__

WATER TANK - 500 GALLON

The apparatus shall be equipped with a five-hundred (500) gallon polypropylene water tank. The tank shall be equipped with a four-inch (4") overflow pipe.

Y__N__

The apparatus shall be equipped with a polypropylene water tank. The tank body and end bulkheads shall be constructed of .75" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

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

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

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

The water tank sump shall be located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be located in the bottom of the tank sump. The sump shall have a minimum 3" threaded outlet on the bottom to be used for a combination clean out and drain.

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

The tank shall rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40 inches, cross member spacing must be decreased to allow for not more than 400 square inches of unsupported area.

The tank must be isolated from the cross members through the use of hard rubber strips with a minimum thickness and width dimension of 1/4" x 1" and a hardness of approximately 60 durometer. The rubber must be installed so it will not become dislodged during normal operation of the vehicle. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both in the front and rear as well as side to side to prevent tank from shifting during vehicle operation.

A picture frame type cradle mount with a minimum of 2" x 2" x 1/4" mild steel, stainless steel, or aluminum angle shall be provided or the use of corner angles having a minimum dimension of 4" x 4" x 1/4" by 6" high are permitted for the purpose of capturing the tank.

Although the tank is designed on a free-floating suspension principle, it is required that the tank have adequate vertical hold down restraints to minimize movement during vehicle operation. If proper retention has not been incorporated into the apparatus hose floor structure, an optional mounting restraint system shall be located on top of the tank, half way between the front and the rear on each side of the tank. These stops can be constructed of steel, stainless steel or aluminum angle having minimum dimensions of 3" x 3" x 1/4" and shall be approximately 6" to 12" long. These brackets must incorporate rubber isolating pads with a minimum thickness of 1/4" inch and a hardness of 60 durometer affixed on the underside of the angle. The angle should then be bolted to the body side walls of the vehicle while extending down to rest on the top outside edge of the upper side wall of the tank.

Hose beds floors must be so designed that the floor slat supports extend full width from side wall to side wall and are not permitted to drop off the edge of the tank or in any way come in contact with the individual covers where a puncture could occur. Tank top must be capable of supporting loads up to 200 lbs per sq. foot when evenly distributed. Other equipment such as generators,

portable pumps, etc. must not be mounted directly to the tank top unless provisions have been designed into the tank for that purpose. The tank shall be completely removable without disturbing or dismantling the apparatus structure.

Y__N__

The tank shall be constructed of Polyprene® sheet stock. This material shall be non-corrosive, stress relieved thermoplastic, black in color and U.V. stabilized for maximum protection. The tank shall be of a special configuration and is so designed to be completely independent of the body and compartments. All exterior tank joints and seems shall feature Pro Lock™ design, which includes snap-in tank components for a mechanical lock as well as extrusion welding and the *Bent Edge*®, and all joints shall be tested for, maximum strength and integrity. The top of the tank is fitted with removable lifting eyes to facilitate easy removability.

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

The tank shall be manufactured by Pro Poly of America, Inc.

Y__N__

WATER TANK FILL TOWER

A fill tower measuring approximately 10” x 10” square shall be provided on the water tank.

Y__N__

Tank suction shall be located in a sump assembly located below the bottom of the tank, properly baffled to prevent surging of water. A 3" cleanout plug shall be provided in the bottom of the tank sump.

Y__N__

HOSEBED WIDTH

The width of the pumper body hose bed shall be 42".

Y__N__

ALUMINUM HOSEBED GRATING

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 6" wide, space 1/2" apart and shall be riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

Y__N__

HOSE BED STORAGE CAPACITY

The hose bed shall be designed to have a storage capacity for a minimum of 30 cubic feet of fire department supplied fire hose.

Y__N__

The hose bed shall be designed to have storage capacity for ten (10) 50-ft lengths of 3” Double Jacket fire hose.

Y__N__

The hose bed shall be designed to have storage capacity for eleven (11) 100-ft lengths of 5” LDH Single Jacket rubber fire.

Y__N__

ALUMINUM HOSEBED DIVIDER

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

The divider shall be fully adjustable, mounted using extruded aluminum track at the rear and aluminum "C" channel tracks at the front of the divider for full side to side adjustment.

Y__N__

Each hose bed divider installed on the apparatus shall be provided with a hand hole cut-out approximately 3" wide x 8" long.

Y__N__

One (1) stationary hose bed partition shall be provided in the main hose bed, mounted left to right. The partition shall be fabricated of .190" smooth aluminum. Partition shall be bolted in place using stainless steel fasteners to allow for ease of removal or relocation.

Y__N__

ALUMINUM HOSEBED COVER

Polished aluminum treadplate hose bed covers shall be furnished, extending the full length and width of the main hose bed.

Covers shall be fabricated of .125" polished aluminum treadplate with cross bracing for maximum strength, and to support the weight of a firefighter standing on the covers when closed. The covers shall be of the sloped design for proper water runoff. Each cover to be equipped with a full-length stainless-steel piano hinge. Hose bed covers shall include heavy duty stops to support them when in the opened position.

Y__N__

MANUALLY OPERATED ALUMINUM HOSEBED COVER

The polished aluminum treadplate hose bed covers extending the full-length and width of the main hose bed shall have lift up handles installed on each hose cover to manually open the hose bed covers.

Y__N__

HOSE BED LED LIGHTS

Four (4) 36" long OnScene Solutions Access LED light shall be installed and produce approximately 800 lumens per light. The light stick shall be rated at 100,000 hours of service and shall be provided with a minimum 5-year free replacement warranty. The light shall have a 5/8" LEXAN™ polycarbonate tube enclosure for severe duty applications. The light stick shall be waterproof and be connectible via a jumper wire to add additional lights in series if required.

The LED lights shall be recessed into the underside of the hinged aluminum hose bed covers to provide illumination for repacking of fire hose. The 12-volt LED lights shall be automatically

controlled by a switch which activates upon opening of the door. The lights shall also be connected to the hazard light in the chassis cab to indicate when the hose bed covers are in the open position.

Y__N__

REAR VINYL FLAPS FOR ALUMINUM COVER

There shall be a vinyl flaps attached to each aluminum hose bed cover. The vinyl flaps shall cover the area on the rear of the hose bed from top to bottom. The flaps shall be independent of each other but attachable with Velcro in the center. The bottom edge of the flap shall be secured utilizing a hook and loop fastening system.

Y__N__

The vinyl cover shall be black in color.

Y__N__

HEAVY DUTY EXTRUDED ALUMINUM BODY

To prevent possible interaction of dissimilar metals and to reduce the weight of the completed apparatus, the body and ALL STRUCTURAL SUPPORTS shall be constructed entirely of aluminum sheet and aluminum extrusions.

Aluminum extrusions or sheet aluminum of smaller thicknesses or lesser grades to those specified herein are not acceptable.

The aluminum extrusion alloy shall be 6061 with a temper rating of T6 and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds.

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

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

All extrusions utilized in the body superstructure, substructure and framing shall be 6061-T6 alloy aluminum. All extrusions shall be beveled at each joint and all seams shall be electrically seam welded using #5356 alloy aluminum wire. For strength and rigidity, all aluminum sheets utilized in the apparatus body for structural support shall be a minimum of 3/16" 5052-H32 alloy aluminum sheet.

Y__N__

FASTENERS

All fasteners use in the apparatus body shall be attached with Ny-Lok type fasteners.

All aluminum and stainless-steel components shall be attached using stainless steel fasteners. Zinc or cadmium plated fasteners are not acceptable for use with any aluminum or stainless-steel components on the vehicle.

Compartment door hinges, handrails and running boards shall be attached using a minimum of 1/4" diameter machine bolt fasteners. Fasteners used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc. shall be 3/16" in diameter.

Y__N__

BODY SUPERSTRUCTURE CONSTRUCTION

All vertical and horizontal structural members of the outer apparatus body shall be constructed of no less than 4.00" by 12.00", 6061-T6 aluminum extrusions with a minimum .200" wall thickness fully welded together forming a unitized support system for the body and compartments. In order to provide a complete internal and integrated body super-structure, full height extruded structural members shall be provided at each corner of the apparatus and between each exterior equipment compartment.

Y__N__

EXTERIOR COMPARTMENT CONSTRUCTION

Compartment sides and walls shall be welded to the super-structure. Seams shall be sealed using an engineered grade polyurethane adhesive-sealant.

The compartments shall be designed to provide protected raceways for vertically hinged door fastener retention elements. This requirement shall eliminate the possibility of door hinge hardware from being damaged by or damaging equipment stored in the compartments.

The compartment door openings are to be full width of the compartment with no loss of space. The raceways shall be designed to allow door hardware removal by a single person with simple hand tools.

Full height access panels fastened with stainless steel fasteners shall be provided to access all wiring routed through vertical super-structure extrusions. There shall be no exposed wiring allowed within the compartment interiors.

Compartment flooring shall be constructed of a combination aluminum extrusion and aluminum treadplate welded in place to the extruded aluminum framework creating a double compartment floor for added strength. Due to the high usage and wear and tear caused by removal of equipment, only treadplate aluminum with a raised pattern will be acceptable for compartment flooring. Bolted or welded in smooth raw aluminum or painted aluminum does not meet the intent nor technical requirement of raised pattern treadplate.

The tops of the side exterior compartments shall be constructed of NFPA #1901 Standards compliant non-slip polished aluminum treadplate fastened to the body with stainless steel

fasteners. Compartment tops that are welded in place do not meet the serviceability intent of this requirement.

Y__N__

SHELVING TRACKS

The vertical extrusions forming the framework of the side exterior compartmentation shall be designed to incorporate **FULLY RECESSED** adjustable shelving standards. Shelving tracks shall run full height of **ALL** side exterior equipment compartment.

The intent of this requirement is to allow full use of the available storage areas without the interference of shelving tracks extending into and reducing the interior widths of the compartments which will allow equipment to be stored within the full width of the compartment interiors.

Shelving, when specified, shall have a width of no less than .50" of the overall compartment widths.

Adjustable shelving tracks welded or bolted onto interior walls of the compartments do not meet the intent of these specifications.

Y__N__

HOSE BODY CONSTRUCTION

To maintain strength and rigidity, the main hose body shall be completely framed with a minimum of 2.00" X 3.00" 6061-T6 alloy aluminum extrusions with a minimum wall thickness .156" on the three-inch legs and a minimum wall thickness of .188" on the two inch legs. The hose body extrusions shall be welded to the super-structure framework, becoming an integral portion of a complete unitized support system. Sheet metal or sheet aluminum with double or triple formed breaks, does not meet the technical requirement of the specification in providing a complete hose body framework and are not acceptable. Sides shall be constructed of aluminum sheet welded to the framework.

Y__N__

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

All 1/4" diameter and smaller screws and bolts shall be stainless steel.

Due to the expected life of the vehicle, proposals will only be acceptable from manufacturers that include these corrosion features.

Y__N__

SIDE BODY HEIGHT

The side body height from the top of the rear tailboard to the top of the body shall be 100" high to match the raised roof cab height. This height may also be referred to as the hose bed riser height.

Y__N__

SIDE BODY HEADER

All high side compartment tops shall be NFPA approved non-slip treadplate with the side body header area above the compartment doors a smooth aluminum painted surface.

Lower or rear face compartments, if specified shall be provided with polished aluminum drip rails.

Y__N__

WHEEL WELL PANEL AND LINER

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth aluminum plate that is fully gasketed and bolted in place with stainless fasteners. Wheel wells shall be of the removable design so as to provide replacement in the event of damage. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. Wheel well panel shall be isolated from the apparatus body utilizing .25" nylon spacer blocks.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 24.00") radius wheel well liner constructed of exterior grade .25" black polyethylene sheet shall be provided. For ease of removal, the liner shall be held in place by a self-captive retention design. Due to possible corrosion and contamination by road debris in the wheel well area a minimal number of mechanical fasteners shall be used to secure the wheel well liner at the front and rear edges.

Y__N__

FENDERETTES

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

Y__N__

ALUMINUM SUB-FRAME

The surface of the chassis frame rails shall be isolated from the apparatus substructure by an elastomeric isolator.

The main body sub-frame shall be fully welded to the longitudinal chassis extrusions. Two (2) 6061-T6 aluminum longitudinal extrusions shall be provided, one (1) on each chassis frame rail running full length beneath the apparatus body. A minimum .50" extruded wall thickness shall be provided on the top flange of the chassis frame rail. Each extrusion shall be designed to cover the complete top flange and outside radius of the chassis frame rail extending down the outside web of the frame rail a minimum of 1.25" to prevent side to side shifting of the apparatus body.

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The main body sub-frame shall be constructed of not less than four (4) 4.00" by 2.50" tubular, 6061-T6 aluminum, "I" beams with a .375" vertical main body crossmembers. A minimum of four (4) crossmembers shall be provided two ahead of and two behind the rear axle forming the main body support crossmembers.

The main cross tubes shall be routed through and fully welded to the vertical and horizontal extrusions forming the body super-structure.

For added strength and rigidity, no less than six (6) intermediate body crossmembers shall be provided constructed of solid aluminum structural "I" beams 4.00" high by 3.00" wide with a minimum .29" flange thickness. If necessary, additional crossmembers shall be provided, to meet the minimum booster tank mounting requirements, as published by the manufacturer of the booster tank provided.

The intermediate structural "I" beam crossmembers shall be interconnected and welded to the main body tubular crossmembers forming a fully welded support grid for the body super-structure compartments and booster tank.

A minimum of six (6) U-bolts shall be provided to secure the body sub-structure to the chassis frame. The forward two (2) U-bolts shall be shock absorbing spring tension type to allow for flexing without placing stress on the apparatus body or chassis frame rails.

Y__N__

BODY WIDTH

The overall width of the pumper body shall not exceed 100". The overall width across the rub rails shall be 101".

Y__N__

COMPARTMENT DEPTH

The upper portion of the left and right-side front of body compartments directly behind the chassis cab shall be transverse.

All other left side compartments shall have an interior useable depth of not less than 26" the full height of each compartment with the specified doors in the closed position in order to provide the maximum amount of storage area.

All other right-side compartments shall have an interior useable depth of not less than 26" the full height of each compartment with the specified doors in the closed position in order to provide the maximum amount of storage area.

Y__N__

ROLL-UP DOOR CONSTRUCTION

Exterior side equipment compartments so specified shall be equipped with roll-up shutter doors to be installed as specified herein. The door shall be located above and outside of the interior of

the compartments thereby protecting the door in the raised position from possible damage by the shifting of equipment.

The door roll mechanism shall also be protected from possible damage should equipment shift while the vehicle is in transit with the door in the closed position.

When the door is raised, the location of the drum assembly shall not allow water drainage from the doors into any portion of the interior of the compartment, thereby preventing the accumulation of water, snow, or ice from damaging the equipment located therein.

The roll-up door drum assembly shall be fully enclosed and protected from the elements. Provisions shall be made on each end and each side of the apparatus for moisture to self-drain from the raised doors to below the apparatus body using integral drainage ports.

To provide access for repairs and adjustments without removing equipment from the compartments, the door roll assemblies shall be serviced from above the compartment. There shall be no need to remove any equipment nor to open the door to provide service to the same. Should a door be prohibited from being raised because of damage to or a defect in the roller assembly, service must be capable of being performed without the cutting, damaging or destroying of the door shutters to gain access. Access to the door mechanism shall be provided through the removable door roller assembly access panel that requires only the use of common hand tools to remove.

Pendent plates supporting the door roll assembly shall be bolted in place, adjustable and capable of being removed with common hand tools. Pendent plates and supports that are welded in place do not meet the maintenance and service criteria of these specifications.

In order to provide unlimited access to stored equipment and to help prevent damage to the tracks by removing equipment, the tracks shall not protrude into any portion of the door frame opening. The width of the door frame opening shall be the actual useable width available to store and remove equipment.

Door openings shall match the compartment sizes as specified.

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

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

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

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

Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door and have “V” shaped double seal to prevent water and debris from entering the compartment. A two (2) inch wide finger pull shall be integrated into the bottom rail extrusion for easy one hand opening and closing. The door latch system shall be a full width one (1) piece lift bar that enables the user to operate with one hand.

A magnetic door ajar system shall be integrated in the lift bar handle and the lift bar handle retainer block to signal an open door.

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

Y__N__

EZ-PULL DOWN STRAPS

Eight (8) elastic nylon straps shall be provided and installed on each roll up door . The straps shall be secured to the side wall of the interior compartment in a way that will allow the EZ-Pull strap to contract automatically and tuck inside the compartment when closed to prevent the strap from dangling and hindering closing of the door. When the door is the open position, the straps shall be installed so that they are fully extended as to not interfere with removing items from the compartment. For the ease of locating, the straps shall be bright orange in color.

- The roll up door tracks shall be painted.
- The roll up door drip rails shall be painted.
- The bottom rail on the roll up doors shall be painted.

Y__N__

Y__N__

BODY LENGTH

The apparatus body shall be approximately 220" long, reference the drawing for actual body length.

Y__N__

Y__N__

COMPARTMENT HEIGHT

The left side full height body compartments shall be 63" high and equipped with a 63" high clear door opening.

The left side upper level compartment(s) shall be 32" high and equipped with a 32" high clear door opening.

Y__N__

LEFT FRONT COMPARTMENTS

There shall be two (2) full height compartments located ahead of the rear wheels. The compartments shall be as follows:

Y__N__

LEFT FRONT COMPARTMENT

There shall be one (1) 36" wide full height compartment located at the front of the body. The compartment shall be equipped with a full height single painted roll up door.

The compartment shall be equipped with the following:

Y__N__

A removable louvered vent shall be provided in the compartment.

Y__N__

Three (3) compartment shelf(ves) shall be provided and constructed of .190" smooth aluminum and are to have formed upward breaks on front and rear for added strength. Shelves shall be fully adjustable within the compartments. Lighter gauge shelf materials are not acceptable.

Shelves shall extend full width of the compartments, within .50" of the overall width, and adjust up and down in the integral shelf tracks.

Y__N__

One (1) compartment divider constructed from 3/16" smooth aluminum material shall be installed. The divider shall be bolted in for ease of removal.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

The lights shall be installed in the shelving tracks; Two (2) lights 56" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

LEFT FRONT COMPARTMENT

There shall be one (1) 44" wide full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single painted roll up door.

The compartment shall be equipped with the following:

Y__N__

A removable louvered vent shall be provided in the compartment.

Y__N__

Two (2) compartment shelves shall be provided and constructed of .190" smooth aluminum and are to have formed upward breaks on front and rear for added strength. Shelves shall be fully adjustable within the compartments. Lighter gauge shelf materials are not acceptable.

Shelves shall extend full width of the compartments, within .50" of the overall width, and adjust up and down in the integral shelf tracks.

Y__N__

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

Y__N__

One (1) compartment divider constructed from 3/16" smooth aluminum material shall be installed. The divider shall be bolted in for ease of removal.

Y__N__

One (1) roll-out tool board panel shall be mounted vertically within compartment. The panel and tracks shall be rated to a maximum load of 500 lb. Panel to be formed of .188" smooth aluminum with an opening to accommodate a gloved-hand to slide tool board.

The tool board shall slide out to full extension of the compartment, with a device to hold tool board in both fully-extended and stored positions.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

The lights shall be installed in the shelving tracks; Two (2) lights 56" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

Y__N__

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

LEFT OVERWHEEL COMPARTMENT

There shall be one (1) 52" wide compartment above the rear wheels. The compartment shall be equipped with a single painted roll up door.

The compartment shall be equipped with the following: 52"

A removable louvered vent shall be provided in the compartment.

Y__N__

One (1) 250 lb. rated capacity fire apparatus swing-out tool board(s) shall be provided. Swing-out tool board(s) shall be provided with 3/16" cadmium plated mounted brackets securely mounted to reinforced mounting points on the apparatus body. Two (2) mounting points shall be on a vertical surface, (1) at the top of the bracket and (1) at the bottom extending approximately 5" from the vertical mounting point. The upper and lower pivot points of the swing-out tool board shall include heavy duty bronze bearings for extended life. Due to the weight of the equipment intended to be carried on the tool board, the mounting points on the apparatus body shall be suitably designed to support the intended weight.

A single latch mechanism shall be provided to lock the tool board in the stored position and in the opened position. The handle shall be an inverted "U" shape for easy access with a gloved hand, painted yellow in color.

The frame of the tool board shall be fabricated of steel tubing welded into a module. Attached to this module shall be a .125" aluminum tool board panel for mounting equipment. Special brackets attached to this tool board shall be provided as listed elsewhere in these specifications.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

The lights shall be installed in the shelving tracks; Two (2) lights 17" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

Y__N__

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

LEFT REAR COMPARTMENT

There shall be one (1) 56" wide full height compartment located behind the rear wheels. The compartment shall be equipped with a full height single painted roll up door.

The compartment shall be equipped with the following:

Y__N__

A removable louvered vent shall be provided in the compartment.

Y__N__

C-TECH MOBILE STORAGE SYSTEM

C-Tech mobile storage system shall be installed in the specified compartment. The assembly shall be constructed of aluminum. All drawers shall have 500 lb. slides and one-handed operation. The latching hardware shall be concealed for protection. The assembly shall have a useable top tray with telescoping ends to aid in installation. Drawer fronts shall be powder coated red with black handles. Rubber liners shall be included in each drawer.

Y__N__

The assembly shall be 42" wide with the following drawers provided in order from top to bottom:

Y__N__

One (1) four inch (4") high drawer(s).

Y__N__

One (1) six inch (6") high drawer(s).

Y__N__

One (1) seven inch (7") high drawer(s).

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

The lights shall be installed in the shelving tracks; Two (2) lights 56" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

Y__N__

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

COMPARTMENT HEIGHT

The right-side full height body compartments shall be 63" high and equipped with a 63" high clear door opening.

The right-side upper level compartment(s) shall be 32" high and equipped with a 32" high clear door opening.

Y__N__

RIGHT FRONT COMPARTMENTS

There shall be two (2) full height compartments located ahead of the rear wheels. The compartments shall be as follows:

Y__N__

RIGHT FRONT COMPARTMENT

There shall be one (1) 36" wide full height compartment located at the front of the body. The compartment shall be equipped with a full height single painted roll up door.

The compartment shall be equipped with the following:

Y__N__

A removable louvered vent shall be provided in the compartment.

Y__N__

Three (3) compartment shelves shall be provided and constructed of .190" smooth aluminum and are to have formed upward breaks on front and rear for added strength. Shelves shall be fully adjustable within the compartments. Lighter gauge shelf materials are not acceptable.

Shelves shall extend full width of the compartments, within .50" of the overall width, and adjust up and down in the integral shelf tracks.

Y__N__

One (1) compartment divider constructed from 3/16" smooth aluminum material shall be installed. The divider shall be bolted in for ease of removal.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

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The lights shall be installed in the shelving tracks; Two (2) lights 56" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

RIGHT FRONT COMPARTMENT

There shall be one (1) 44" wide full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single painted roll up door.

The compartment shall be equipped with the following:

Y__N__

A removable louvered vent shall be provided in the compartment.

Y__N__

Two (2) compartment shelves shall be provided and constructed of .190" smooth aluminum and are to have formed upward breaks on front and rear for added strength. Shelves shall be fully adjustable within the compartments. Lighter gauge shelf materials are not acceptable.

Shelves shall extend full width of the compartments, within .50" of the overall width, and adjust up and down in the integral shelf tracks.

Y__N__

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

Y__N__

One (1) compartment divider constructed from 3/16" smooth aluminum material shall be installed. The divider shall be bolted in for ease of removal.

Y__N__

One (1) roll-out tool board panel shall be mounted vertically within compartment. The panel and tracks shall be rated to a maximum load of 500 lb. Panel to be formed of .188" smooth aluminum with an opening to accommodate a gloved-hand to slide tool board.

The tool board shall slide out to full extension of the compartment, with a device to hold tool board in both fully-extended and stored positions.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the

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compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

The lights shall be installed in the shelving tracks; Two (2) lights 56" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

RIGHT OVERWHEEL COMPARTMENT

There shall be one (1) 52" wide compartment above the rear wheels. The compartment shall be equipped with a single painted roll up door.

Y__N__

The compartment shall be equipped with the following:

A removable louvered vent shall be provided in the compartment.

Y__N__

One (1) 250-pound capacity rollout and drop-down tray shall be installed in the specified compartment. The tray shall be constructed of aluminum with 3" edges on each side. The tray shall be equipped with roller bearing wheels.

The track assembly allows the tray to roll out of compartment while dropping downward at approximately a 30-degree angle.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

Y__N__

The lights shall be installed in the shelving tracks; Two (2) lights 17" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

CITY OF MAPLEWOOD (FIRE DEPARTMENT)

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

Y__N__

RIGHT REAR COMPARTMENT

There shall be one (1) 56" wide full height compartment located behind the rear wheels. The compartment shall be equipped with a full height single painted roll up door.

Y__N__

The compartment shall be equipped with the following:

A removable louvered vent shall be provided in the compartment.

Y__N__

Three (3) compartment shelves shall be provided and constructed of .190" smooth aluminum and are to have formed upward breaks on front and rear for added strength. Shelves shall be fully adjustable within the compartments. Lighter gauge shelf materials are not acceptable.

Shelves shall extend full width of the compartments, within .50" of the overall width, and adjust up and down in the integral shelf tracks.

Y__N__

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

Y__N__

The compartment shall be provided with InVisiLight LED Compartment lighting. The lighting shall be installed in the adjustable shelving track which shall be recessed into the side wall of the compartment. The lighting shall provide a continuous illumination from the compartment bottom to top and side to side while still allowing for full adjustment of any compartment provision (shelf/tray/etc.). To prevent damage, lights that protrude into the compartment in any fashion shall be deemed unacceptable.

Y__N__

The lights shall be installed in the shelving tracks; Two (2) lights 56" in length shall be installed, one on each side of the compartment. The lights shall produce approximately 17 lumens per inch of lighting.

Y__N__

The lights shall be provided with a minimum 5-Year warranty.

Y__N__

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

Y__N__

REAR BODY CONFIGURATION

The rear of the apparatus body shall be of the flat back design.

Y__N__

SEVERE DUTY REAR STEP BUMPER - BOLT-ON

A single piece severe duty rear step bumper shall be furnished that is a minimum of 20.00" deep and full width of the apparatus body from rub rail to rub rail. The rear step bumper shall be fabricated steel material with a height of 12", minimum thickness of 1/4" with top and bottom flanges of no less than 1-3/4". The severe duty rear step bumper shall be supported directly by the rear drop-frame assembly that is attached directly to the chassis frame rails. The bumper shall be mitered inward from the outer edges towards the frame rails and welded at the miter. Two (2) recessed step-pockets shall be provided in the mitered face providing a maximum step height of no more than 24" from the ground to the apparatus. The severe duty rear step bumper shall be primed and painted to match the apparatus color. The severe duty rear step bumper shall be bolted in place and removable for replacement or repair. The stepping surface shall be constructed of .188" embossed aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards. A label shall be provided warning personnel that riding on the rear step while the apparatus is in motion is prohibited.

Y__N__

ACCESS LADDER - EZ CLIMB - RIGHT REAR

There shall be a swing out access ladder supplied and installed for accessing the top of the apparatus. It shall be of an all-aluminum design incorporating treads 13" inches wide spaced no more than eighteen (18") inches apart.

The access ladder shall have integrated hand holds, to aid in the ascent/descent of the ladder.

When in the deployed position the ladder shall have an angle of approximately 75-degrees to facilitate ascending and descending the ladder. The ladder overall width shall be approximately 14 inches wide.

The ladder is not to have the lower fold-down portion. The lower portion of the ladder is to be mounted to the rear face of the body with a pivot mechanism to allow the ladder to pull out for easier climbing.

Y__N__

STEP LIGHTS

Two (2) 8" long OnScene Solutions Access LED lights shall be installed to illuminate the access ladder steps. Each light stick shall produce approximately 200 lumens. The light stick shall be provided with a 5 year free replacement warranty. The light shall have a 5/8" LEXANTM polycarbonate tube enclosure for severe duty applications. The light stick shall be waterproof and be connectible via a jumper wire to add additional lights in series if required. The light shall be mounted in a polished cast aluminum bezel.

Y__N__

WHEEL WELL COMPARTMENT LEFT SIDE BEHIND WHEELS

One (1) wheel well compartment shall be located on the left side in the rear wheel well panel behind the rear wheels of the type specified herein.

Y__N__

FUEL FILL DOOR

A Fire Shopp Inc. fuel fill access assembly shall be provided on the left side rear wheel well area. The assembly shall include a painted stainless-steel fuel fill enclosure door and a black polymer fuel assembly. A label indicating DIESEL FUEL ONLY shall be applied.

Y__N__

LEFT SIDE ROOF COMPARTMENTS

Two (2) upper body compartment shall be provided top of body with useable dimensions of approximately 24" wide by 20" deep by half the available upper body length.

The compartment shall have a lift-up door installed and constructed of 3/16" NFPA approved non-slip aluminum tread plate flanged downward to overlap the door opening. The door shall have a stainless-steel hinge and dual gas openers. The door opening shall be flanged upward to prevent water from running into compartments when the door is closed. The gas openers shall be installed in a dual-purpose over-center arrangement to hold the door in either the open or closed position. Two (2) heavy duty socket and plunger latches shall be installed to secure the door. A heavy-duty chrome grab handle shall be provided to lift the door.

Y__N__

The compartment shall be located on the left side of the body.

Y__N__

Two (2) 62" long OnScene Solutions Access LED light shall be installed on the door and contain 42 LEDs producing approximately 210 lumens per light (six LEDs and 30 lumens every 9"). The light stick shall be rated at 100,000 hours of service and shall be provided with a minimum 5 year free replacement warranty. The light shall have a 5/8" LEXANTTM polycarbonate tube enclosure for severe duty applications. The light stick shall be waterproof and be connectible via a jumper wire to add additional lights in series if required.

Y__N__

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

Y__N__

LEFT REAR ACCESS LANDING

A 24" wide by 20" long landing area shall be provided for accessing the top of the body. The landing area entry shall be 12" wide with a 15" high knee wall for added safety. The landing area shall be of an integrated design, utilizing the body superstructure with integrated polished aluminum tread plate overlays and polished embossed aluminum tread plate floor. The landing area shall be completely sealed, preventing moisture and debris from entering all body compartments.

Y__N__

ACCESS LANDING LIGHTS

One (1) rubber shock mounted, sealed and weathertight LED clear light shall be installed. The light shall be a totally enclosed (not exposed to the environment) polycarbonate fixture and recessed in the rear knee wall facing forward to illuminate the access landing area. The light shall have a 4.00" nominal diameter with light emitting diodes and equipped with wire plugs for ease of removable or replacement.

Y__N__

The light shall be switched to turn on when the park brake is applied or the ground lights are on.

Y__N__

RIGHT SIDE ROOF COMPARTMENTS

Two (2) upper body compartment shall be provided top of body with useable dimensions of approximately 24" wide by 20" deep by half the available upper body length.

The compartment shall have a lift-up door installed and constructed of 3/16" NFPA approved non-slip aluminum tread plate flanged downward to overlap the door opening. The door shall have a stainless-steel hinge and dual gas openers. The door opening shall be flanged upward to prevent water from running into compartments when the door is closed. The gas openers shall be installed in a dual-purpose over-center arrangement to hold the door in either the open or closed position. Two (2) heavy duty socket and plunger latches shall be installed to secure the door. A heavy-duty chrome grab handle shall be provided to lift the door.

Y__N__

Two (2) 62" long OnScene Solutions Access LED light shall be installed on the door and contain 42 LEDs producing approximately 210 lumens per light (six LEDs and 30 lumens every 9"). The light stick shall be rated at 100,000 hours of service and shall be provided with a minimum 5-year free replacement warranty. The light shall have a 5/8" LEXANTM polycarbonate tube enclosure for severe duty applications. The light stick shall be waterproof and be connectible via a jumper wire to add additional lights in series if required.

Y__N__

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

Y__N__

SLIDE OUT HORIZONTAL LADDER COMPARTMENT

Ground ladders shall slide into a compartment accessed from the rear of the apparatus. The compartment shall fully enclose and house the specified ground ladders on individual scuff resistant brackets. There will be a stop in front of the compartment to prevent the ladders from sliding forward. An aluminum hinged door shall be provided and installed using a D-ring type latch. The door shall be provided with weather-stripping to seal compartment from the elements. The specified booster tank shall be constructed with a cavity for the ladders to pass through.

Y__N__

LADDER SOURCE

New ground ladders shall be provided by the manufacturer.

Y__N__

ROOF LADDER

One (1) Duo Safety Model 775-A, 14-foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed all latest NFPA Standards.

Y__N__

EXTENSION LADDER

One (1) Duo-Safety Model 1200-A, 28-foot two (2) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

Y__N__

FOLDING ATTIC LADDER MOUNTING

A mounting in the ground ladder storage shall be provided for the specified folding attic ladder.

Y__N__

FOLDING ATTIC LADDER SOURCE

New folding attic ladders shall be provided by the manufacturer.

Y__N__

FOLDING LADDER

One (1) Duo Safety Model 585-A, 10-foot folding aluminum ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA Standards.

Y__N__

PIKE POLE MOUNTING BRACKET

Six (6) tube shall be provided for pike pole mounting. The tube shall have a 2-1/4" interior diameter and shall be mounted within the ladder compartment.

Y__N__

PIKE POLE SOURCE

The pike poles shall be provided by the body builder.

Y__N__

PIKE POLE

Two (2) 6' pike pole with I-Beam handle shall be provided. The pike pole shall be of fiberglass construction.

Y__N__

PIKE POLE

Two (2) 10' pike pole with I-Beam handle shall be provided. The pike pole shall be of fiberglass construction.

Y__N__

ROOF HOOK

Two (2) 6-ft Fire Hooks Unlimited NY style Roof Hook with grips shall be provided.

Mounted in transverse area under the speedlay in L1/R1 compt.

Y__N__

RIGHT REAR LONG STORAGE COMPARTMENT

One (1) fully enclosed long storage compartment shall be provided in the area behind the main body compartment roll-up doors and above the main body compartments on the right side. The design, as a minimum, shall allow a 10' long hard suction hose or similar length equipment to be stored in the compartment. Individual equipment items shall be capable of being removed from the rear of the apparatus. The long storage compartment shall have a smooth aluminum door for chevron or paint, stainless steel vertical hinge and a single point latch.

FRONT BODY PROTECTION PANELS

Brushed stainless steel overlays and panels shall be installed on the front of the body compartment from the lower edge to the top of the compartment doors. The material shall be bolted in place and sealed to prevent any moisture entry between the overlay and the body structure.

Y__N__

REAR BODY PROTECTION PANELS

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

Y__N__

FUEL TANK ACCESS PANEL

There shall be a removable panel in the rear compartment, used to gain access to the fuel tank and fuel gauge-sending unit.

Y__N__

REAR STEP HAND RAILS

Two (2) exterior lighted hand rails, approximately 48" in length, shall be vertically mounted on the rear, one (1) on each side of the body. The hand rail shall be made of 1.25" diameter extruded aluminum to enable non-slip assistance with a gloved hand and mounted on stanchions. The hand rails shall feature blue LED lighting which shall illuminate when the park brake is engaged. Black in color.

HAND RAIL BELOW HOSEBED

One (1) exterior lighted hand rail, approximately 48" in length, shall be horizontally mounted below the hose bed on the rear of the apparatus body. The hand rail shall be made of 1.25" diameter extruded aluminum to enable non-slip assistance with a gloved hand and mounted on stanchions. The hand rail shall feature blue LED lighting which shall illuminate when the park brake is engaged. Black in color.

Y__N__

EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel. There shall also be a bolt on aluminum corner casting on each rear corner to blend the rear tail board assembly with the side rub rails.

Y__N__

GREEN STAR IDLE REDUCTION TECHNOLOGY (IRT)

A Green Star idle reduction technology system shall be supplied with the apparatus that will significantly reduce the amount of diesel exhaust soot, NOx and CO2 emissions into the atmosphere. Diesel engines contain pollutants that negatively impact human health and the environment. Diesel engines emit large amounts of nitrogen oxides, particulate matter and air toxics, which contribute to serious public health problems. Idle reduction technology has been verified by the U.S. EPA to reduce diesel emissions from diesel powered vehicles and engines.

The Green Star IRT will reduce idle time through the use of an auxiliary power unit (APU) in conjunction with automatic diesel engine controls that will shut down the main chassis diesel engine during operations not requiring the use of the pump assembly. This system will be automated and will not require intervention from the vehicle operator. There will be a time delay engine shut down feature that will automatically shut down the chassis main diesel engine and engage the diesel driven APU. This feature will be available when the chassis air brake is set and when the pump assembly is not engaged.

All features below are available with the main chassis diesel engine off.

The chassis voltage system is protected against extreme drain of the battery bank. If the vehicles voltage drops to 12 VDC, the automatic engine controls will start the chassis diesel engine to provide a charge.

Reducing the amount of idle time for the chassis diesel engine will substantially reduce the fuel consumption.

GREEN STAR "INHIBIT" SWITCH

There shall be a momentary rocker switch with green indicator on the cab switch panel labeled "INHIBIT". When activated, the switch shall "INHIBIT" or prevent the automatic operation of the Green Star IRT system.

Y__N__

AUXILIARY POWER UNIT (APU)

A NPPI/Kubota 8KW, 120/240 volt, diesel driven generator shall be provided. The generator shall be controlled electronically by the Green Star IRT system. The APU engine shall be a Kubota D1105BG diesel powered. The APU generator shall be a Mecc Alte NPE 32-B/4. The engine must comply with Tier 4 emissions regulations.

Y__N__

ALTERNATOR

A 160-amp alternator shall be supplied with the APU. The alternator shall be tied to the chassis batteries.

Y__N__

APU (AUXILIARY POWER UNIT) SWITCH

There shall be a momentary rocker switch with green indicator on the cab switch panel labeled "APU". The switch shall allow the driver or operator to manually "Start" or "Stop" the APU as desired.

An "inhibit" switch shall also be provided in the apparatus cab.

An "inhibit" switch shall also be provided in the apparatus cab

Y__N__

REMOTE MOUNT OIL FILTER

A remote oil filter kit is to be installed up to 3 feet from the diesel APU to improve access to the diesel APU oil filter.

Y__N__

GREEN STAR AUXILIARY 12 VOLT AIR CONDITIONING

The system shall have a minimum of a 12.6 cubic inch a/c compressor, belt driven by the Green Star diesel APU engine, providing refrigerant the chassis a/c system. The belt driven compressor refrigerant lines shall be connected into the chassis a/c system to provide cool and dry air into the chassis cab using the chassis cab's a/c evaporator and condenser. All a/c systems in the chassis cab shall perform comparably to when the chassis engine is running. controls for the auxiliary a/c use the existing a/c controls that are part of the chassis cab climate control system.

The auxiliary a/c using the diesel APU is available anytime the chassis engine is not running, the APU is running, chassis ignition is on and air conditioning has been selected through the chassis a/c controls. Auxiliary a/c shall not require the chassis to be in idle reduction.

Y__N__

GENERATOR MOUNTING LOCATION

The generator shall be installed in the front section of the hose bed.

Y__N__

CIRCUIT BREAKER BOX

One (1) circuit breaker box for single phase voltage equipment shall be provided capable of holding twelve (12) breakers.

Y__N__

CIRCUIT BREAKER BOX LOCATION

The circuit breaker box shall be installed in an outside body compartment.

Y__N__

The instrument panel for the generator shall be installed next to the breaker panel.

Y__N__

120V ELECTRIC RECEPTACLE -- STRAIGHT BLADE

Four (4) 120-volt 20-amp straight blade, 3-prong duplex receptacle with spring loaded weatherproof cover shall be provided.

Y__N__

POWER DISTRIBUTION STRIP

Three (3) power distribution strip with six (6) straight blade receptacles shall be provided. The unit shall have a 20-amp capacity and an integral on/off switch.

Y__N__

LINE VOLTAGE TRANSFER SWITCH

One (1) automatic transfer switch shall be installed that allows components normally powered by the 120-volt shore power connection to be automatically powered by the on-board generator upon startup of the generator.

Y__N__

ELECTRIC CABLE REEL

One (1) Hannay ECR-1600 series electric cable reel with an electric rewind shall be installed on the vehicle. The reel shall be designed for use with 120-volt, three (3) wire cable. The duty rating of the cable reel shall be for continuous usage. The reel shall be installed so that it is easily accessible for cord access and maintenance. A 12-volt motor controlled by a push button switch located in a convenient position and properly labeled shall perform the electric rewind function.

The installation of the cable reel shall meet applicable sections of the NFPA standards.

Y__N__

Reel Capacity

The reel shall be sized to hold 110 percent of the capacity needed for the specified cable length. The wire size shall be in accordance with the National Electric Code.

Y__N__

Labeling

An information label shall be installed in a location visible adjacent to any permanently connected reel with the following data:

- Voltage
- Phase
- Current type
- Current rating
- Total cable length

Y__N__

Electrical Supply Wiring To Reel

The wiring shall end in a sealed conduit box at the reel with mechanical connectors to allow removal of the reel. Appropriately, sized wire and circuit breakers shall be utilized.

Y__N__

The electric cable reel shall be installed in the right-side dunnage area of the pump compartment.

Located in the officer's side rear coffin compartment.

Y__N__

A two hundred-foot (200') length of 10/3 yellow electric cable shall be installed with specified plugs. The cable shall be type SEO-WA with a 20-amp, 120 volt rating.

Y__N__

The electric cable shall be configured with a 120-volt 20-amp NEMA L5-20R three prong, twist lock female receptacle.

Y__N__

One (1) ball stop shall be attached to the electric cable to prevent total re-wind and to allow the cable to remain at a reachable position. The ball shall positively attach to the cable and be bright orange in color for high visibility.

Y__N__

JUNCTION BOX

One (1) Circle-D model PF51G-1 yellow electrical junction box shall have a 12" pigtail with a NEMA L5-20 twist-lock plug for connection to the cord reel. The unit shall have an integral pilot light to indicate electrical current.

The unit shall be equipped with four (4) 120-volt 20-amp NEMA 5-20 straight blade receptacles, each with a hinged, weatherproof cover.

Y__N__

ACCESS DOOR

There shall be an access door on the rear of the apparatus. The door will be on the officer's side and will include the long handle storage compartment and the cord reel.

The long handle tool storage door shall extend up to the coffin to allow the cord reel to be deployed from behind the door.

Roller Assy, Cable Reel, 4-Way, SS Rollers

Y__N__

One (1) four-sided encompassing stainless-steel roller unit for the electric cable shall be installed on specified reels. The roller unit shall be mounted in the specified location to permit the cable to feed directly off the reel.

FRONT MOUNTED ELECTRIC WINCH

One (1) 10,000 lb. capacity portable winch, Model ZEON10 P/N 90340, manufactured by the Warn Winch Company shall be installed. The 12-volt electric winch system shall utilize a portable mounting system with two (2) carrying handles. Power is supplied to the winch through a 12-volt pigtail with a quick connect plug. The winch shall be attached to the body at the specified locations with a steel tube insert secured with a pin.

The winch shall have forward and reverse modes and shall be controlled by a push button device at the end of a removable 25-foot minimum or longer cable which connects to the winch through a weatherproof receptacle.

The winch shall be provided with a cable guide, 80-feet of 3/8-in diameter galvanized aircraft cable and hook assembly.

Y__N__

WINCH RECEIVER - REAR

The rear of the apparatus body shall be equipped with a receiver assembly for high or low angle rescue or winch applications. The receiver shall be a square steel tube, same size as that of a trailer hitch. The unit shall be attached to the body sub-frame assembly.

Y__N__

One (1) 12 volt Warn quick disconnect electrical receptacle, shall be installed in the body for the portable winch. The power cables shall be color coded "red" positive and "black" neutral and rated at 125% of winch power requirement (including line drop).

Y__N__

WINCH RECEIVERS - SIDE BODY

The body shall be equipped with two (2) receiver assemblies for high or low angle rescue or winch applications. The receivers shall be square steel tube, same size as that of a trailer hitch. The units shall be attached to the body sub-frame assembly or chassis frame rails and shall be located behind the rear wheels, one (1) on the left side and one (1) on the right side of the apparatus.

One (1) slide in receiver with the same dimensions as a trailer hitch receiver shall be shipped loose with the apparatus. The unit shall be equipped with a 2.5" eye opening.

The receiver assemblies (total of 2), shall be rated at a minimum of 5,000 pounds each, and each assembly shall be secured with one (1) safety pin.

Y__N__

Two (2) 12 volt Warn quick disconnect electrical receptacle, shall be installed in the body for the portable winch. The power cables shall be color coded "red" positive and "black" neutral and rated at 125% of winch power requirement (including line drop).

Y__N__

BODY PAINT PROCESS

While constructing the truck body, all aluminum parts that are to be finish painted shall be properly fitted on the body and then removed to be painted as individually. The back side of all aluminum parts shall be sanded smooth of any burrs and sharp edges.

During reassembly of the apparatus, care shall be exercised in fitting and fastening the parts back in their respective position on the vehicle.

All aluminum parts shall be bolted to the body using stainless steel fasteners. Zinc or Cadmium plated fasteners are not acceptable. All bright metal fittings, if unavailable in stainless steel shall be heavily chrome plated. Iron fittings shall be copper plated prior to chrome plating.

All seam shall be caulked both inside and along the exterior edges with a urethane automotive sealant to prevent moisture from entering between any body panels.

The body and all parts shall be thoroughly washed with a grease cutting solvent (PPG DX330) prior to any sanding. After the body has been sanded and the weld marks and minor imperfections are filled and sanded, the body shall be washed again with (PPG DX330) to remove any contaminants on the surface.

The next two to four coats (depending on need) shall be a PPG DelFleet F4936 High Solids Epoxy Gray Primer. The film build shall be 4-6 mils when dry. The primer surfacer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure maximum gloss of the paint. The last step is the application of at least three coats of PPG Delfleet polyurethane two-component color (single stage). The film build being 2-3 mils dry. The single stage polyurethane, when mixed with corresponding catalyst shall provide a UV barrier to prevent fading and chalking.

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

Y__N__

INTERIOR COMPARTMENT FINISH

The interior of the eight (8) compartments shall be unpainted and have a D/A orbital sander finish.

Y__N__

TOUCH-UP PAINT

One (1) two (2) ounce bottle of touch-up paint shall be furnished with the completed truck at final delivery.

Y__N__

- One (1) Q2B Grill/Shroud Pedestal shall be finished with flat black paint.

Y__N__

CITY OF MAPLEWOOD (FIRE DEPARTMENT)

- One (1) pair of air horns (2) shall be finished with flat black paint. Y__N__

- One (1) bumper apron (flat areas) shall be finished with black Line-X. Y__N__

- One (1) bumper hose well - Interior shall be finished with black Line-X. Y__N__

- One (1) bumper hose well - Exterior shall be finished with black Line-X. Y__N__

- One (1) bumper lid (raised) shall be finished with black Line-X. Y__N__

- One (1) rear step shall be finished with black Line-X. Y__N__

- One (1) pair of hose bed covers shall be finished with black Line-X. Y__N__

- One (1) crosslay cover shall be finished with black Line-X. Y__N__

- Four (4) coffin compartment cover(s) shall be finished with black Line-X. Y__N__

- One (1) body trim (Front of Body 12") shall be finished with black Line-X. Y__N__

- One (1) access ladder shall be finished with black Line-X. Y__N__

- One (1) access ladder surround shall be finished with black Line-X. Y__N__

CITY OF MAPLEWOOD (FIRE DEPARTMENT)

- One (1) landing area at the top of the access ladder shall be finished with black Line-X.

Y__N__

- Full set of wheel and lug nut covers shall be finished with powder coated black.

Y__N__

SIMULATED SILVER LEAF LETTERING

The lettering shall be applied in simulated silver leaf material, shaded in black and encapsulated in clear Mylar.

A quantity of seventy-five (75), four (4) inch letters are to be placed on the cab and on the body as directed by fire department.

Y__N__

SIMULATED SILVER LEAF LETTERING

The lettering shall be applied in simulated silver leaf material, shaded in black and encapsulated in clear Mylar.

A quantity of fifty (50) letters are to be placed on the cab and on the body as directed by fire department. The letters shall be between eight and twelve inches in height.

Y__N__

MALTESE CROSSES

Two (2) Mylar silver leaf Maltese crosses with black outlining and a clear urethane coating shall be applied. The crosses shall be 12" in diameter.

Y__N__

REFLECTIVE STRIPING

A 1" x 6" x 1" wide 3M brand Scotchlite reflective multi-stripe shall be affixed to the perimeter of the vehicle. There shall be a 1" gap between each of the stripes. Striping shall conform to applicable NFPA requirements. At least 50% of the perimeter length of each side and width of the rear, and at least 25% of the perimeter width of the front of the vehicle shall have reflective striping.

Y__N__

COLOR OF STRIPING MATERIAL

The color of the 3M brand striping material shall be black.

Y__N__

CHEVRON STRIPING

The front bumper shall have 3M Diamond Grade reflective red and yellow striping installed. The chevron style striping shall be applied at a 45-degree upward angle.

Y__N__

CHEVRON STRIPING

The entire rear portion of the body shall have 3M Diamond Grade reflective red and yellow striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

Y__N__

INTERIOR CAB DOOR CHEVRON

Reflective striping shall be installed on the interior of each chassis door. The lower portion of the doors shall have a Scotchlite red and yellow chevron striping applied to it. A reflective stripe shall also be applied on the vertical outer edge of each cab door.

Y__N__

WHEEL CHOCKS WITH MOUNTS

A pair of Zico Model SAC-44 Quic-Chok folding wheel chocks shall be provided and mounted under the apparatus body with model SQCH-44H horizontal mounting brackets.

FINAL PAGE OF SPECIFICATIONS