

PATRICIA A. PESHKA

PURCHASING AGENT



JOSEPH J. SOLOMON

MAYOR

**CITY OF WARWICK**  
PURCHASING DIVISION  
3275 POST ROAD  
WARWICK, RHODE ISLAND 02886  
TEL (401)738-2013  
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The following notice is to appear on the City of Warwick's website Thursday, October 18, 2018. The website address is <http://www.warwickri.gov/bids>.

**CITY OF WARWICK  
BIDS REQUESTED FOR**

**Bid2019-174 Custom Tandem Axle Walk-In Heavy Rescue**

Specifications are available in the Purchasing Division, Warwick City Hall, Monday through Friday, 8:30 AM until 4:30 PM on or after Thursday, October 18, 2018. *Please note that our offices will be closed on Tuesday, November 6, 2018.*

Sealed bids will be received by the Purchasing Division, Warwick City Hall, 3275 Post Road, Warwick, Rhode Island 02886 up until 11:00 AM, Wednesday, November 7, 2018. The bids will be opened publicly commencing at 11:00 AM on the same day in the Lower Level Conference Room at Warwick City Hall.

Awards will be made on the basis of the lowest evaluated or responsive bid price. Please note that no bids can be accepted via email or fax.

The City of Warwick, in addition to soliciting bids in response to this RFP, may consult, consider, and make an award for any and all open bid offers for a comparable unit as sought herein at the following websites:


RI State MPA: <http://www.purchasing.ri.gov/MPA/MPASearch.aspx>

NASPO: <https://www.naspo.org/>

NJPA (National Joint Powers Alliance): <https://www.njpacoop.org/cooperative-purchasing>

MHEC (Massachusetts Higher Education Consortium): <https://www.mhec.net/>

Individuals requesting interpreter services for the hearing impaired must notify the Purchasing Division at 401-738-2013 at least 48 hours in advance of the bid opening date.



Patricia A. Peshka  
Purchasing Agent

**PLEASE COMPLETE THIS PAGE & SUBMIT WITH YOUR BID**

**Acknowledgement of Addendum (if applicable)**

**Addendum Number**                      **Signature of Bidder**

\_\_\_\_\_

\_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

COMPANY ADDRESS: \_\_\_\_\_

COMPANY ADDRESS: \_\_\_\_\_

BIDDER'S SIGNATURE: \_\_\_\_\_

BIDDER'S NAME (PRINT): \_\_\_\_\_

TITLE: \_\_\_\_\_ TEL. NO.: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_ \*

\*Please include your email address. Future bids will be emailed, unless otherwise noted.

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**II. AWARD AND CONTRACT:**

The CITY OF WARWICK, acting as duly authorized through its Purchasing Agent/Finance Director/Mayor, accepts the above bid and hereby enters into a contract with the above party to pay the bid price upon completion of the project or receipt of the goods unless another payment schedule is contained in the specifications. All terms of the specifications, both substantive and procedural, are made terms of this contract.

DATE: \_\_\_\_\_

Bid2019-174

\_\_\_\_\_  
Purchasing Agent

**PLEASE COMPLETE THIS PAGE & SUBMIT WITH YOUR BID**

**CERTIFICATION & WARRANT FORM\***

**This form must be completed and submitted with sealed bid  
Failure to do so will result in automatic rejection.**

Any and all bids shall contain a certification and warrant that they comply with all relevant and pertinent statutes, laws, ordinances and regulations, in particular, but not limited to Chapter 16- Conflicts of Interest, of the Code of Ordinances of the City of Warwick. Any proven violation of this warranty and representation by a bidder at the time of the bid or during the course of the contract, included, but not limited to negligent acts, either directly or indirectly through agents and/or sub-contractors, shall render the bidder's contract terminated and the bidder shall be required to reimburse the City for any and all costs incurred by the City, including reasonable attorney fees, to prosecute and/or enforce this provision.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

**\*This form cannot be altered**

**CITY OF WARWICK  
NOTICE TO BIDDERS**

**Bid2019-174 Custom Tandem Axle Walk-In Heavy Rescue**

If you received this document from our homepage or from a source other than the City of Warwick Purchasing Division, please check with our office prior to submitting your bid to ensure that you have a complete package. The Purchasing Division cannot be responsible to provide addenda if we do not have you on record as a plan holder.

The opening of bids will be in the order established by the posted agenda and the agenda will continue uninterrupted until completion.

Once an item has been reached and any bids on that item has been opened, no other bids on that item will be accepted and any such bid will be deemed late.

The contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap for any position for which the employee or applicant is qualified and that in the event of non-compliance the City may declare the contractor in breach and take any necessary legal recourse including termination or cancellation of the contract.

A bidder filing a bid thereby certifies that no officer, agent, or employee of the City has a pecuniary interest in the bid or has participated in contract negotiations on the part of the City, that the bid is made in good faith without fraud, collusion, or connection of any kind with any other bidder for the same call for bids, and that the bidder is competing solely in his own behalf without connection with, or obligation to, any undisclosed person or firm.

All bids should be submitted with one (1) original and one (1) copy, also to include two (2) electronic copies, in a sealed envelope, which should read: *YOUR COMPANY NAME* plainly marked on the exterior of the envelope as well as "Bid2019-174 Custom Tandem Axle Walk-In Heavy Rescue."

Bids received prior to the time of the opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a bid not properly addressed and identified. No bids will be accepted via facsimile or email.

Should you have any questions, please contact Acting Chief Fontenault, Warwick Fire Department, at 401-468-4044.

All bids should be written in ink or typed. If there is a correction with whiteout, the bidder should initial the change.

Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it is open.

Any deviation from the specifications must be noted in writing and attached as part of the bid proposal. The bidder should indicate the item or part with the deviation and indicate how the bid will deviate from specifications.

The IRS Form W-9 is available on [www.warwickri.gov](http://www.warwickri.gov) should be completed and submitted with the bid if the bidder falls under IRS requirements to file this form.

Bid surety in the form of a bank check, original bid bond or certified check in the amount of ten (10) percent of the total bid price must be submitted with each bid. If a bid bond is submitted, it must be duly executed by the bidder as principal and having as surety thereon a surety company licensed to do business in the State of Rhode Island and approved by the owner.

The successful bidder must provide the City of Warwick with an original **Certificate of Insurance** for General Liability and Automobile Liability in a minimum amount of \$1 million, naming the **City of Warwick as the additional insured** and so stated on the certificate with the bid name and bid number. It is the vendor's responsibility to provide the City of Warwick with an updated Certificate of Insurance upon expiration of the original certificate.

Failure to provide adequate insurance coverage within the specified duration of time as set forth is a material breach of contract and grounds for termination of the contract.

The successful bidder must furnish a **Performance Bond** in the amount of 100 percent of the total bid price.

For a bid to be awarded to a corporation, limited liability company or other legal entity, prior to commencing work under the awarded bid, that corporation, company or legal entity may be required to provide to the Purchasing Agent a **Certificate of Good Standing** dated no more than thirty (30) days prior to the date upon which the bid approval was made.

The successful bidder will provide said **Certificate of Insurance, Performance Bond and Certificate of Good Standing** (if required) within ten (10) calendar days after notification or the City reserves the right to rescind said award.

Prices to be held firm through the final delivery and acceptance of the rescue by the Warwick Fire Department.

The City is exempt from the payment of the Rhode Island Sales Tax under the 1956 General Laws of the State of Rhode Island, 44-18-30, Paragraph I, as amended.

The contractor must carry sufficient liability insurance and agree to indemnify the City against all claims of any nature, which might arise as a result of his operations or conduct of work.

The Purchasing Agent reserves the right to reject any and all bids, to waive any minor deviations or informalities in the bids received, and to accept the bid deemed most favorable to the interest of the City.

The City reserves the right to terminate the contract or any part of the contract in the best interests of the City, upon 30-day notice to the contractor. The City will incur no liability for materials or services not yet ordered if it terminates in the best interests of the City. If the City terminates in the interests of the City after an order for materials or services has been placed, the contractor will be entitled to compensation upon submission of invoices and proper proof of claim, in that proportion which its services and products were satisfactorily rendered or provided, as well as expenses necessarily incurred in the performance of work up to time of termination.

No extra charges for delivery, handling or other services will be honored. All claims for damage in transit will be the responsibility of the successful bidder. Deliveries must be made during normal working hours unless otherwise agreed upon.

All costs directly or indirectly related to the preparation of a response to this solicitation, or any presentation or communication to supplement and/or clarify any response to this solicitation which may be required or requested by the City of Warwick will be the sole responsibility of and will be borne by the respondent.

If the respondent is awarded a contract in accordance with this solicitation and fails or refuses to satisfy fully all of the respondents obligations thereunder, the City of Warwick will be entitled to recover from the respondent any losses, damages or costs incurred by the City as a result of such failure or refusal.

The City reserves the right to award in part or full and to increase or decrease quantities in the best interest of the City.

Any quantity reference in the bid specifications are estimates only, and do not represent a commitment on the part of the City of Warwick to any level of billing activity. It is understood and agreed that the agreement will cover the actual quantities ordered during the contract period.

The City reserves the right to rescind award for non-compliance to bid specifications.

The successful bidder must adhere to all City, State and Federal Laws, where applicable.



including pump overhaul, body fabrication, collision repair, and a paint shop complete with a cross flow booth with air makeup and bake options to insure the highest quality paint finish available. Bids from manufacturers who use third party service people or facilities, or who do not offer a service center will be immediately rejected. Furthermore, due to a concern over having vehicles "out-of-service" for extended periods of time as a result of having to be sent back to the original manufacturer's location for repairs, any bidder who cannot guarantee that all future repairs will be handled at a local level will not be acceptable.

### **Emergency Vehicle Technician Qualifications**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Due to the highly specialized nature of fire apparatus repair, emergency vehicle technicians employed by the bidder shall be in conformance with NFPA standards 1915 and 1071. The bidder shall employ at least two (2) technician certified as a "Master Mechanic" (having amassed every EVT certification). Proof of current certification shall be supplied with the bid. There shall be no exceptions to this requirement. Bids from organizations that do not meet these requirements shall be immediately rejected.

### **Service Questionnaire**

The bidder shall include the following information with their bid.

- ◆ Number of miles from the purchaser to the nearest staffed service facility owned and operated by the bidder

Number of miles: \_\_\_\_\_

- ◆ The number of service bays and square feet of service space at the bidder's service facility.

Number of bays: \_\_\_\_\_ Square feet: \_\_\_\_\_

- ◆ The length of time the service facility has been in business as an emergency vehicle dealer.

Number of years in business: \_\_\_\_\_

- ◆ How long has the dealer been selling the brand of emergency vehicle being proposed?

Number of years: \_\_\_\_\_

- ◆ Has the dealer/distributor represented other manufacturers of emergency vehicles in the past?

Yes/No



- ◆ Number of heavy rescues that have been delivered by the dealer/distributor since it has been in business representing its current "brand(s)" of emergency vehicles?

Number of heavy rescues delivered: \_\_\_\_\_

- ◆ Is the dealership strictly dedicated to selling and servicing emergency vehicles and equipment, or do they sell and service other products?

Strictly dedicated to emergency vehicles and equipment? \_\_\_\_\_

- ◆ Number of EVT Certified personnel employed? EVT "Master Mechanics"?

EVT certified personnel: \_\_\_\_\_ EVT Master Mechanic: \_\_\_\_\_

- ◆ Number of full-time mechanics employed by the bidder that are solely dedicated to servicing emergency vehicles? \_\_\_\_\_

Number solely dedicated to emergency vehicle service: \_\_\_\_\_

- ◆ Full body/collision repair, fabrication, and paint booth on-site?

Yes/No

- ◆ Over \$400,000 in parts inventory available at all times?

Yes/No

- ◆ Does the local service facility accept work on other vehicles (i.e., DPW, oil, concrete, etc.) or fleet trucks in addition to emergency vehicles on a regular basis?

Yes/No

- ◆ Does the possibility exist that the emergency vehicle may have to go back to the original manufacturer's location for warranty work?

Yes/No

- ◆ Does the dealer/distributors service facility perform ALL warranty work for the products they represent?

Yes/No

- ◆ Does the dealer offer mobile service that can respond to a "priority service call" within (48) hours?

Yes/No

**Delivery** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The apparatus shall be delivered under its own power to assure adequate break-in while under warranty. It shall first be transported to the local service facility, where final inspection and preparation will be performed, including mounting of related equipment. The apparatus will then be delivered to the Purchaser's location.

**Post-Delivery Training** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

On one (1) mutually agreeable date after delivery, a certified delivery engineer shall familiarize those persons designated by the Fire Chief with the basic operation of the apparatus and its components. Such training must be coordinated by a fire department officer with a minimum of 20 years of "hands on" experience on the fire ground. This shall be a full instructional program including both classroom and practical or "hands on" training. Limited programs or "drop-off" type deliveries are unacceptable.

**Construction Time** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The completed apparatus shall be delivered within three hundred sixty-five (365) days from the signing of the final purchase contract.

**Penalty Clause** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A Penalty of \$100/day shall be in effect after three hundred sixty-five (365) days from the signing of the final purchase contract.

**Loaner Vehicle** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The successful bidder must offer a loaner vehicle program, when available.

**Preventive Maintenance Program:** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Bidder must include an **on-site (Warwick, RI Fire Department)** preventative maintenance program, covering 1911 inspections as well as bi-annual and annual preventative maintenance.

Bidder must be an approved vendor of the City of Warwick.

**Approval Drawings** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

**Electronic Manuals**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Two (2) copies of all operator, service, and parts manuals must be supplied at the time of delivery in digital format. The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator’s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer’s location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

**Fire Apparatus Safety Guide**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the fire apparatus operator and maintenance manuals or commercial chassis manufacturer’s operator and maintenance manuals.

**Manufacturing Trips** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

**Prebuild Trip**

An all-expense paid **Pre-Build** trip to the manufacturing facility to meet with engineering staff prior to the start of manufacturing is included for two (2) Fire Department representatives.

**Midpoint Inspection Trip**

An all-expense paid **Mid-Point Inspection** trip for two (2) Fire Department representatives to the manufacturing facility to perform a midpoint inspection of the apparatus, is included.

**TESTING COMPLIANCE STANDARD**

**Overall Height Restriction**

The apparatus shall have no overall height restrictions.

**Overall Length Restriction**

The unit has no overall length restrictions.

**NFPA Compliance** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Equipment Capacity** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Equipment allowance on the apparatus shall be 10,000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

**BUMPERS**

**Front Bumper Extension** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**LINE-X bumper package** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

LINE-X bumper package: Includes all visible diamond plate (smooth aluminum if equipped) surfaces including gravel shield, exterior surface of trays and lids (flat or raised). If equipped, exterior of the fabricated booster reel housing, fabricated box for booster reel rollers and winch access door shall be included in this package.

**Bumper**

**NO EXCEPTIONS**

A heavy duty 10" high steel channel type front bumper shall be provided. The front corners of the bumper shall be angled to reduce swing clearance. The driver side of the bumper shall have a notch to allow room for a flush mounted Q2B siren.

The bumper shall be painted job color.

**Bumper Gravel Shield**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The extended front bumper gravel shield shall be made of 3/16" (.188") aluminum treadplate material. The shield shall fully cover the top flange of the heavy duty front bumper.

**WINCHES**

**Winch**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A Warn 12-S Spydura Pro series, 12000 lb. electric reversible winch with 100' of 7/16" synthetic rope with a replaceable clevis hook shall be mounted to the chassis frame extension centered at the front bumper area. The winch shall be controlled with a 30' remote control switch. An access door with a quarter turn latch and spring hold open shall be provided in the front bumper extension gravel shield to allow for maintenance of the winch components.

A Hawse fairlead shall be provided through the front bumper.

**FRAME ASSEMBLY**

**Frame Assembly**

**NO EXCEPTIONS**

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

Dimensions: 10-1/4" x 3-1/2" x 3/8"

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

Section Modulus: 16.61 cu. in.

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

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

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

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

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

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

The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship. Warranties that provide a lifetime warranty for only the frame rails, but not the cross-members, are not acceptable. NO EXCEPTIONS.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

## **Frame Liner**

## **NO EXCEPTIONS**

A 9-3/8" x 3-1/8" x 3/8" channel frame liner shall be bolted to each frame rail for added strength and rigidity. Frame liners shall be made of 110,000 psi minimum yield, high strength, low alloy steel. The frame rail liners shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

Each frame rail with liner shall have the following minimum characteristics:

Section Modulus: 28.74 cu. in.

RBM: 3,161,400 in. lbs.

The frame liners shall be inserted inside the open portion of the frame rails and shall run continuously from the rear of the frame to the centerline of the front axle to provide maximum frame strength at all critical load points.

**Galvanized Frame Components**

**NO EXCEPTIONS**

The front chassis frame extensions, rear subframe (If equipped), crossmembers and battery brackets shall be hot-dip galvanized for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

**Coated Fasteners**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

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

**AXLE OPTIONS**

**Front Axle**

**NO EXCEPTIONS**

The vehicle shall utilize a Dana D-2200W drop beam front axle with a rated capacity of 22,800 lbs. It shall have 71” kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 42 degrees including front suction applications.

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

The front springs shall be parabolic tapered, minimum 4” wide x 54” long (flat), minimum three (3) leaf, progressive rate. The springs shall have Berlin style eyes and rubber bushings on each end with an additional standard wrap at the front eye. The capacity shall be 23,000 lbs. at the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

The vehicle shall be equipped with a Sheppard integral model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 23,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

A 3 year/unlimited miles parts and 3 year labor axle warranty shall be provided as standard by Dana.

**Shock Absorbers Front**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

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

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

**Rear Axle**

**NO EXCEPTIONS**

The vehicle shall utilize a Meritor MT-40-14X, 40,000 lb. capacity rear tandem axle with single reduction hypoid gearing. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals.

An Inter-Axle Differential (IAD) shall be provided for the rear axles. The IAD shall allow for speed differences between the forward and rear axles in a tandem while also providing equal pulling power from each axle of the tandem. The IAD shall be controlled by a switch accessible by the driver.

A 2-year/unlimited miles parts and 2-year labor rear axle warranty shall be provided as standard by Meritor Automotive.

**SUSPENSIONS**

**Rear Suspension**

**NO EXCEPTIONS**

The vehicle shall be equipped with a Ridewell Dynalastic rear suspension. The suspension shall consist of center trunnions, compensators, elastomer springs, and independent torque arms. Cross tubes and torque rods shall also be provided to maintain proper alignment during cornering and to absorb driving and braking forces. The suspension shall be rated for the maximum axle capacity.

A 4 year pro-rated warranty shall be provided as standard.

**WHEEL OPTIONS**

**Front Wheel Trim Package**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

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



**Rear Wheel Trim Package**

**Tandem Axle**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year rebuffing policy. There shall be four (4) high hats and forty (40) lug nut covers.

**Valve Stem Extensions**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

Each inside rear wheel on the rear axles shall have valve stem extensions.

**Front Wheels**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

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

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

**Rear Wheels**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The vehicle shall have eight (8) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

**TIRE OPTIONS**

**Front Tires**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The front tires shall be two (2) Michelin 425/65R22.5 tubeless type 20 PR radial tires with XFE highway tread.

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

Max front rating 22,800 @ 65 mph.

Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)

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

**Tire Pressure Indicators**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

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

Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015.

**Rear Tires**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The rear tires shall be Michelin 11R22.5 tubeless type radial tires with XDS2 mud and snow tread.

The tires with wheels shall have the following weight capacity:

48,000 lbs. (tandem duals) @ 65 MPH

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

**BRAKE SYSTEMS**

**Front Brakes**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The front axle shall be equipped with Dana ADB22X 17 inch disc brakes.

A 3 year/unlimited miles parts and 3 year labor brake warranty shall be provided as standard by Dana. The warranty shall include bushings and seals.

**Rear Brakes**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The rear axle shall be equipped with ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 48,000 lb. axle ratings and P-Type shoes with over 48,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RT-40-145, RT-46-160 and RT-50-160 axles, and Haldex brand shall be supplied on RT-58-185 axles.

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

**Brake System**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

The vehicle shall be equipped with air operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 Standard.

Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. A 1/4" brass quick-release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

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

Two (2) air pressure needle gauges, for front and rear air pressure, with warning light and buzzer shall be installed at the driver's instrument panel.

One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

The following tank sizes shall be installed:

**Tank Sizes in Cubic Inches**

<b>Suspension</b>	<b>Wet</b>	<b>Front</b>	<b>Rear</b>	<b>Rear Extension</b>	<b>Total</b>
34-54K	1738	1738	2988	0	6464
58K	1738	1738	2988	1738	8202

An automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves.

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally-sealed, water-, weather-, and vibration-resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern.

Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall indicate malfunction to the operator.

The system shall consist of a sensor clip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate in milliseconds wheel slip. A deviation shall be corrected by cyclical brake application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall ensure that each wheel is braked in optimum efficiency up to five (5) times a second.

The system shall also interface with the application of the auxiliary engine, exhaust, or driveline brakes to prevent wheel lock.

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

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

**Park Brake Release** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Electronic Stability Control** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The apparatus shall be equipped with a G4 6S6M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational - sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.

Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and

intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer.

To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

## **AIR SYSTEM OPTIONS**

**Air Dryer** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Isolated Air Reservoir** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.

Specified options shall be plumbed to the isolated air tank.

**Auxiliary Air Tank Plumbing** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The auxiliary air tank shall be plumbed to the following optional accessories, if equipped: Chassis air horns, brake system air outlet, air reel, light tower, air primer and or customer/dealer supplied pneumatic add-on(s).

**Air Lines** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Air Horns** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Stainless Steel Mounting Straps**  
[Qty: 4]

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Stainless steel mounting straps shall be provided for an air tank.

## **ENGINES & TRANSMISSIONS**

**Transmission Selector**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Transmission Fluid**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Vehicle Speed**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Electronic speed limiting set at 60 MPH as required by NFPA 1901.

**Engine/Transmission Package**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

**Engine**

The vehicle shall utilize a Cummins X12 engine as described below:

- 500 Horsepower
- Six (6) cylinder
- Variable Geometry Turbocharged
- Charge Air Cooled (CAC) 4-cycle diesel
- Cummins XPI high pressure fuel injection system
- Fuel cooler (air to liquid)
- 720 cu.in. (11.8 liter) displacement
- 500 gross BHP at 1800 RPM and a peak torque of 1695 lb.ft. at 1000 RPM with a governed RPM of 2000
- Bore and stroke shall be 5.2 x 5.67
- Engine lubrication system shall have a minimum capacity, to include filter, of 49 quarts
- Cooled Exhaust Gas Recirculation (EGR)
- Delco-Remy 39 MD-HD 12 volt starter
- 26 cubic foot per minute air compressor

- Single module after treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2018 EPA Emission standards

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

The air cleaner shall be an 11” diameter K&N for lower restriction and high air flow. The filtration media shall be washable and easily accessed for service. The air filter shall have a 3 year / 300,000 mile warranty.

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

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

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

**Transmission**

The vehicle shall utilize an Allison EVS4000P, electronic, 5-speed automatic transmission.

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

The transmission shall have a gross input torque rating of up to 1850 lb. ft. and a gross input power rating of up to 600 HP.

The gear ratios shall be as follows:

1 - 3.51

2 - 1.91

3 - 1.43

4 - 1.00

5 - .74

R - 4.80

The transmission shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the operator.

The transmission shall have a lubricant capacity of 51 quarts.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow).

The transmission shall contain two engine driven PTO openings located at the 1 and 8 o'clock positions. The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of transmission when engine speed is decreased during pump operations, thereby maintaining a constant gear ratio. Transmission lock-up shall be automatically activated when placing pump in gear. Transmission lock-up shall be automatically deactivated when disengaging pump for normal road operation.

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

#### **Automatic Shift to Neutral**

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

## **SECONDARY BRAKING**

### **Jacobs Engine Brake**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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



**Transmission Programming**                      **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

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

## **EXHAUST OPTIONS**

**Exhaust End Modification**                      **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight out below the side of body. A stop ring shall be provided on the tail pipe to properly position the Plymovent nozzle. The exhaust outlet shall be vented for use with 2013 and newer EPA engines.

## **COOLING PACKAGE**

### **Engine Cooling Package**

**Radiator**    **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

**Silicone Hoses**                                      **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

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

**Coolant**    **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

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

**Coolant Recovery** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be a coolant overflow recovery system provided.

**Charge Air Cooler System** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Charge Air Cooler Hoses** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Fan/Shroud** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Transmission Cooler** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

## **FUEL SYSTEMS**

**Fuel Re-Prime** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

An auxiliary 12 volt fuel pump shall be included in the fuel system. The electric pump shall permit re-priming of the fuel lines and engine. The pump may be manually operated with a switch located accessible to driver. The electric pump shall also automatically operate in conjunction with the mechanical fuel pump as long as engine oil pressure is present. The system shall be plumbed to allow full flow to by-pass the pump.

**Fuel Shut-Off**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located: one (1) at fuel tank.

**Fuel Line Hose**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Wire braided fuel hose meeting SAE J-1402 shall be provided for the chassis fuel system. The hose shall have a working temperature rating of -55 degree F to 300 degree F.

The ends of the hose shall have connections that shall allow the hose to be reattached if removed.

**Fuel System**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

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

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

# ALTERNATOR

**430 Amp Alternator** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be a 430 amp Niehoff alternator installed as specified.

The alternator shall be a 380 amp, per NFPA 1901 rating (430 amp per SAE J56), Niehoff model C680-1 brushless type with internal rectifier. The unit shall have an adjustable remote mounted solid state voltage regulator.

The alternator also has the following features:

**High Output:** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Output range at typical 625 rpm engine idle meets or exceeds recommended minimum continuous load requirement identified in NFPA 1901.

**Long Life Bearings:** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Bearings have high temperature grease and are heat stabilized for extended service life in hot engine compartments.

## Electromagnetic Interference (EMI) Suppression:

Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Meets SAE J1113 specifications. Will not cause interference with the vehicle's properly designed and grounded communication equipment.

# BATTERIES

**Battery System** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

The manufacturer shall supply six (6) heavy-duty Group 31 12 volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be steel frame mounted battery boxes on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. The batteries shall have a minimum combined rating of 6,000 (6 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 1110 (6 x 185) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.



**Rear Trailer Hitch**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A rear mounted Class III trailer hitch shall be constructed of 2-1/2" x 2-1/2" steel tubing and 5" steel channel. The hitch shall be securely attached to the chassis frame and painted black. The hitch shall be supplied without a ball and pin.

**DEF Tank**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

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

**Power Steering Cooler**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Side 9K Winch Receivers**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Receivers, side body 9K winch receivers - frame rail height shall be provided. Two (2) winch receivers, one (1) each side, of body. Each receiver position shall have its own pin. Winch receiver(s) shall be rated for a maximum of 9,000 line pull pounds with a 2.0 to 1 straight line pull no-yield safety factor. 12VDC power and exterior doors not included.

\*\*\*12VDC power and exterior doors not included\*\*\*

# CAB MODEL

## Cab Cyclone Long w/ Barrier Style Doors

Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

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

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

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

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

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

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

The cab front skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9" outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact.

**Cab Exterior**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

The exterior of the cab shall be 94" wide x 139.5" long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101" above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58".

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

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

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4" (0.25") thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,700-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.



**Cab Mounts and Cab Tilt System** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

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

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

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

**Cab Interior** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4" dual density fiberglass composite panels with foil

backing manufactured to specifically fit the engine cover without modification to eliminate "sagging" as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test).

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

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

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

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

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

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

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

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

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

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" deep x 12" wide x 3.5" high and the officer side compartment shall be approximately 14" deep x 12" wide x 11" high (height will be reduced with air or electric seat). Note: With RollTek option the compartments may be occupied by air bag system components.

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear cab steps shall be a minimum 12" deep x 21" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear steps shall incorporate intermediate steps for easy access to the cab. The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

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

**Cab Doors** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

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

Front cab door openings shall be approximately 36" wide x 63" high, and the rear cab door openings shall be approximately 33.75" wide x 63" high. The front doors shall open approximately 75 degrees, and the rear doors shall open approximately 80 degrees.

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

Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901.

The front door windows shall provide a minimum viewing area of 530 sq. in. each. The rear door windows shall provide a minimum viewing area of 500 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable. Rear cab doors shall be provided with full roll down windows except when used with paddle style external door latches.

**Cab Instruments and Controls****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 28", and the blade length approximately 20". Each arm shall have a 70 degree sweep for full coverage of the windshield.

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

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

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

**Fast Idle System****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Electrical System****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

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

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

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

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

**Cab Crashworthiness Requirement Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

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

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

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

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

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

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



shall provide an apparatus cab that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

## **CAB ROOF TYPE**

**Raised Roof** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

## **CAB BADGE PACKAGE**

**Logo Package** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

## **CAB DOOR OPTIONS**

**Rear Cab Door Position** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

**Rear Cab Door Windows** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The rear cab door windows shall be manually operated to raise and lower.

**Cab Front Windows** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The front windows of the cab shall have manual actuation.

**Cab Door Locks** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Each cab door shall have a manual operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.

**Cab Door Locks** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Cab Door Panels** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Cab Door Exterior Latches** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

All cab doors shall have "L" style exterior door latches.

**Cab Door Stainless Steel Trim** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Each cab door shall have a stainless steel trim on the trailing edge of the door opening. Rear doors shall have full vertical height trim; front cab doors shall be 50" tall on rear vertical edge above floor level.

**Nader Pin Guards** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Guards shall be provided on the interior of the front cab doors to guard cab door latches.

**Cab Door Reflective Material** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Reflexite V98 Red/Fluorescent Yellow Green reflective striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

**Cab Door Area Lighting** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be four (4) clear TecNiq model T440 4" circular LED lights provided to illuminate the cab step well area. Each light shall be mounted in a resilient shock absorbent grommet and be located in the cab step well area. Each light shall be activated by the cab door ajar circuit.



**Cab Front Door Windows**                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

Driver and officer door windows shall be full width.

**Cab Compartment Door Trim**                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

A anodize aluminum trim shall be located at the bottom edge of the cab exterior compartment openings. The trim shall provide added protection of the painted surface of the cab when equipment is placed or removed from the compartments.

## **CAB STEP OPTIONS**

**Cab Steps**    **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

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

## **MIRRORS**

**Cab Mirrors**    **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

Two (2) Velvac model 2010 heated, remote controlled, stainless steel mirrors with marker lights shall be installed. The west coast style mirrors shall consist of a large 7" x 16" flat and 4" x 6" wide angle convex with stainless steel break-away mounts. The adjustment of the main sections of the mirror and the heater control shall be through dash mounted switches.

## **MISC EXTERIOR CAB OPTIONS**

**Front Mud Flaps**    **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

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

**Handrails**    **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

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

**Handrails****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Cab Wheel Well****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Receptacle Mounting Plate****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**HVAC****Air Conditioning****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

The unit shall be mounted to the cab interior headliner in a mid cab position, away from all seating positions. The unit shall provide ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery.

A serviceable filter shall be installed on the A/C evaporator. The filter shall consist of a steel perimeter frame with a foam filter.

The control panel shall actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve. A three-speed blower switch shall control air speed.

The condenser shall be roof mounted and have a minimum capacity of 65,000 BTU's and have dual fans with a built in receiver drier.

Performance Data: (Unit only, no ducting or louvers)

AC BTU: 55,000

Heat BTU: 65,000

CFM: 1300 @ 13.8V (All blowers)

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

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

**Heat, Supplemental** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver`s and officer`s footwell.

Dual 23,000 BTU water heaters with diamond plate covers shall be supplied in the rear of the cab to heat the rear cab lower section.

Dual climate control will be achieved via dual switches installed on a front instrument panel. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display.

**HVAC Control Location** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

## **SEATS**

**Cab Seats** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

All cab seats shall be Bostrom brand.

**Seat, Driver**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

One (1) H. O. Bostrom 400 Series Sierra Air- 100RX4 suspension seats with high back styling shall be supplied for the driver position.

Features shall include:

- Air-100 suspension assembly with weight, height and ride adjustment.
- Built in lumbar support.
- 4” vertical suspension motion.
- 5” fore and aft adjustment.

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

**Seat, Officer**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

One (1) H. O. Bostrom 400 Series fixed seat with high back SCBA storage for the officer’s position shall be supplied.

Features shall include:

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

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

**Seats (PR), Fwd Facing Center of Rear Wall SCBA**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

Two (2) H. O. Bostrom 400 Series fixed seats with high back SCBA storage shall be provided on the center of the rear wall in the center position. The seats shall be mounted on a common seat riser.



**Bostrom SecureAll Locking System Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

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

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

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

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

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

The bracket(s) shall be located officer's seat, inboard driver's side rear wall, inboard officer's side rear wall.

**Seat Belt Extender Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

ReadyReach seat belt extenders shall be provided. The extender shall include an arm that places the shoulder belt D-loop in a closer, easier to reach location.

The extenders shall be provided for the driver's seat, officer's seat, inboard driver's side rear wall, inboard officer's side rear wall seat.

## **MEDICAL CABINETS**

**Medical Storage Cabinet Finish Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

The medical storage cabinet(s) shall have a Zolatone gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.

**Medical Storage Cabinet**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

There shall be one (1) medical storage cabinet provided over the officer side wheel well of the cab. The medical storage cabinet shall be constructed of 1/8" (.125") smooth aluminum plate. The medical storage cabinet shall be approximately 42" high x 22" (25" Quest) wide x 28" deep.

There shall be two (2) adjustable shelves provided in the medical storage cabinet. The shelves shall be constructed of 1/8" (.125") smooth aluminum plate. Each shelf shall have a 1" front and rear lip for strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical storage cabinet.

The medical storage cabinet shall be accessible externally of the cab by a locking double pan door and internally by a heavy duty black nylon cargo netting.

The exterior door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. Inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The exterior door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with a #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The exterior door shall be securely attached to the apparatus cab with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the cab and exterior door with a dielectric barrier. The door shall be attached with machine screws threaded into the door frame. The door shall have a gas shock-style hold-open device.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water run-off away from the compartment.

**Medical Storage Cabinet**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

There shall be one (1) medical storage cabinet provided over the driver side wheel well of the cab. The medical storage cabinet shall be constructed of 1/8" (.125") smooth aluminum plate. The medical storage cabinet shall be approximately 42" high x 22" (25" Quest) wide x 28" deep.

There shall be two (2) adjustable shelves provided in the medical storage cabinet. The shelves shall be constructed of 1/8" (.125") smooth aluminum plate. Each shelf shall have a 1" front and rear lip for strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical storage cabinet.

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An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water run-off away from the compartment.

## **MAP BOXES**

### **Map Box**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

An aluminum map/storage box shall be installed in the cab. The map box shall be constructed of 1/8" (.125) inch smooth aluminum. Hinged drop-down doors, with push button latches, shall be installed on the front of the box for the access to two (2) storage areas. Each storage area shall have three (3) fixed shelves for storage of ring binders, map books, etc. Each latch shall have a 25 lb. rating.

The map box shall be mounted on the vertical uprights in the center of the cab between the driver and officer seating positions. The map box shall be secured and tested to meet with current NFPA requirements.



Approximate dimensions:

Divided storage area - 37.5" W x 15" H x 14" D.

**Map Box Finish** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The map box(es) shall have Zolatone gray #20-64 finish.

## MISC INTERIOR CAB OPTIONS

**Storage Under Free Standing Rear Wall Seat [Qty: 2]** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be one (1) horizontal-hinged door provided on the front of the riser enabling access to store equipment below the rear wall free standing seat. One (1) flush-mounted adjustable lever latch shall be provided to hold the door in the closed position. The lever shall meet NFPA 1901 standards for forward facing equipment storage.

**Cab Interior Color** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

**Sun Visors** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Air Horn Lanyard** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Mounting Plate on Engine Cover** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

An equipment mounting plate shall be provided between the driver and officer on the chassis engine cover. The plate shall be mounted to the engine access door spaced approximately 1/2" up to provide clearance for equipment mounting hardware. The plate shall be constructed of 3/16" aluminum plate and have a swirl finish.

**Engine Cover** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

**Cup Holder/Storage Tray Enlarged Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

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

**Overhead Console Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A severe duty forward overhead console, air conditioning plenum and rear facing blower cover shall be provided. Each overhead console section shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

**Severe Duty Driver Dash Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The driver side upper dash shall be provided constructed of smooth aluminum painted to match the cab interior. The upper gauge package shall be provided with an ABS housing only.

**Cab Dash - Low Profile Severe Duty Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. The center and officer side dash panel shall be lowered to provide increased visibility. A hinged access panel shall be provided on top of the center dash to provide easy access to components within.

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

**Rear Engine Cover Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The rear engine cover shall be provided with a stepped profile for use with rear engine cover options and/or mounting of equipment on the cover.

**Cup Holder / Storage Tray [Qty: 4] Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

An extra large cup holder inside a tray assembly shall be provided at a location specified by the customer. The tray shall be approximately 8" long x width of the cup holder x approximately 3" tall and constructed from .125" aluminum plate. The cup holder shall be large enough to fit drink carrier up to 3.875" base diameter. The assembly shall be painted to match the cab interior color.

## **CAB ELECTRICAL OPTIONS**

**Cab Dome Lights Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Four (4) ceiling mounted dome light assemblies shall be provided.

Each light shall consist of a three-position assembly mounted rocker switch, LED (light emitting diode) 4" grommet mount white dome light, LED (light emitting diode) 4" grommet mount red dome light, and a plastic housing.

The white light activates with appropriate cab door and light assembly mounted rocker switch, the red light activates with assembly mounted rocker switch only.

Two (2) lights shall be located in both the front and rear of the cab.

**Auto-Eject Battery Charger Receptacle Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

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

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

**Auto Transfer Switch Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

An automatic transfer switch shall be installed to allow all interior receptacles to be powered either by the shore power receptacle or the on-board generator.

The system shall include an eight (8) place breaker box for the interior receptacles.

**English Dominant Gauge Cluster Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

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

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

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

**Radio Speakers Additional Pair Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

Two (2) additional pairs of radio speakers shall be supplied.

Rear speakers mounted (2) in rear headliner of cab, and (2) in walk-in area. Speakers shall be 5-1/4" diameter.

**Headlights Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

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

**Battery Charger/Air Compressor Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A Kussmaul Auto-Charge 1200 battery charger and air compressor with automatic battery charger shall be installed.

The battery charger shall be completely automatic with an output of 0-40 amps @ 12 volts DC and an input current requirement of 10 amps @ 120 volts AC.

A Kussmaul air compressor with automatic battery conditioner model 091-9-1200 shall be installed. The battery conditioner is completely automatic with a 0-40 amp output to maintain the charge in the battery system. The air compressor shall be powered by a 12 volt DC output from the battery charger and has an output of .30 cfm at 80 PSI. A pressure switch senses the system pressure and operates the compressor whenever the pressure in the air brake system drops below a pre-determined level.

**12 Volt (or 24 Volt) Outlet Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A plug-in type receptacle for hand held spotlights, cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacle shall be wired battery hot.

**Antenna Base** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Battery Charger Location** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The battery charger shall be located up high in driver side wheel well medical cabinet offset forward.

**Air Compressor Location** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The air compressor shall be located up high in officer side wheel well medical cabinet offset forward.

**Cab Turn Signals** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

**Programming Instructions** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Auxiliary switch 1 on the steering wheel switch pod shall be programmed to operate the Q2B.

**Programming Instructions** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Auxiliary switch 2 on the steering wheel switch pod shall be programmed to operate the Front Brow Lights.

**Programming Instructions** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Auxiliary switch 3 on the steering wheel switch pod shall be programmed to operate the 12v Officer Side Body Scene Lights.

**Cab USB Charging Port** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A dual USB charging port for cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacles shall be wired battery hot.

**Cab Headlights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The quad cab headlight bezels shall contain rectangular sealed beam halogen lights.

**DPF Regeneration Override** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Steering Wheel Switches** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The steering wheel shall be supplied with two (2) switch pods. Each switch pod shall include five (5) switches. The pods shall include switching for wipers, master warning, air horns and auxiliary engine brake (on/off). In addition there shall be three (3) auxiliary switches that can be programmed to meet department specified functions.

The wiper switches shall include high / low speed, intermittent, wipe / wash and off. The wiper motors shall be synchronized so as to wipe each windshield simultaneously.

**Radio** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The apparatus cab shall be equipped with a Delphi model PP105713 heavy duty AM/FM/Weather band stereo receiver. The unit shall include a compact disc player, front auxiliary input and front USB port.

Two (2) 5-1/4" radio speakers and antenna shall be supplied and mounted in the padding adjacent to driver and officer seats.

The receiver unit shall be suppressed from engine noise to provide clear sound through the speakers.

Location: center overhead console offset to driver side.

**Riser Height Compartment Lighting** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

One (1) EON LED light shall be provided to illuminate the interior of the bench seat riser on the rear wall of the cab. The light(s) shall be wired through the compartment door switch.

# BODY SPEC

**Walk-in Rescue Body Spec**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

## **Apparatus Body**

The apparatus body shall be constructed entirely of aluminum plate and extrusions. The interlocking framework, constructed from beveled 6061T5, 6061T6 and 6063T5 extrusions, shall be electrically seam welded both internally and externally at each joint using 5356 aluminum alloy welding wire. The entire exterior body shall be completely sanded and deburred to assure a smooth finish prior to painting. All horizontal surfaces, rear steps, and the rear body surface shall be constructed from aluminum fire apparatus quality diamond plate.

The apparatus body shall feature a two (2) module design. Module 1 being a fully enclosed L1/R1 transverse compartment. Module 2 being a fully enclosed walk-in rescue body.

Each body corner rail shall be a 5" X 5" aluminum 6063T5 alloy corner section with 1/8" (.125) wall thickness and shall be welded as an integral part of the body. The corner extrusions shall have a 1-1/2" (1.5) outside radius and a full length 1/8" (.125) internal extruded gusset. The walk-in body shall utilize a 5" x 5" aluminum 6063T5 alloy corner extrusion as the apparatus top rail. The extrusion is slotted for an internal fit of 3/16" (.187) aluminum 3003 H-14 alloy smooth plate which shall be the body side panels. The horizontal body side extrusions shall be 1.5" x 4" 6063T6 aluminum tube with 3/16" (.187) wall thickness and 3/16" (.187) outside corner radius. The frame crossmember extrusions shall be 3" x 3" 6061T6 aluminum with 3/8" (.375) wall thickness. These crossmembers shall extend the full width of the body to support the compartment framing and shall be welded to a 1-3/16" (1.187) x 3" solid aluminum, 6061T5 frame sill extrusion that shall be shaped to contour with the chassis frame rails. The wheel well frame, constructed from 1.5" x 4" 6063T5 aluminum extrusions shall be slotted the full length to permit an internal fit of 1/8" (.125) aluminum diamond plate. The front exterior of the body shall be constructed of 3/16" (.187) and the roof of the body shall be constructed of 1/8" (.125) fire apparatus quality diamond plate. All of the smooth aluminum plate and fire apparatus quality diamond plate shall be 3003 H-14 aluminum alloy.

The lower interior side walls shall be constructed of 1/8" (.125) fire apparatus quality diamond plate. The ceiling area and upper side wall finish shall be Kemply plywood. The upper interior side walls of the body, above the exterior compartments, and the ceiling area, shall be insulated with 1" solid Styrofoam insulation. The walk-in standing area floor shall be constructed of 3/16" (.187) fire apparatus quality embossed diamond plate.

Body handrails shall consist of two (2) 36" length of 1.25" O.D. anodized aluminum installed between chrome end stanchions on the trailing edge of each beavertail. The handrail extrusion shall be ribbed to assure a good grip for personnel safety.

All body compartments shall be constructed from 1/8" (.125) formed aluminum 3003 H-14 alloy plate. All compartment floors shall be constructed of 1/8" (.125) aluminum fire apparatus quality

diamond plate welded in place. Compartment floors shall be supported by a minimum 3/16" (.187) walled aluminum extrusions. The compartment seams shall be sealed by using a permanent pliable silicone caulking. The compartments shall be machine louvered for adequate ventilation.

The body shall have a body side protection rubrail along the length of the body on each side and at the rear. The rubrail shall be constructed of minimum 3/16" (.187) thick anodized aluminum 6463T6 extrusion. The rubrail shall be constructed of minimum .1875" thick 6463T6 aluminum extrusion. The rubrail shall be a minimum of 2.75" high X 1.25" deep and shall extend beyond the body width to protect the compartment doors and the body side. The design of the rubrail shall protect any specified marker lights that are mounted inside its C-channel. The top surface of the rubrail shall have 5 serrations raised a minimum of 0.1" high with cross grooves designed to provide a slip resistant edge for the rear step and running boards. The rubrail shall be spaced away from the body using .1875" nylon spacers. The ends of each section shall be provided with a rounded corner piece. The area inside the rubrail C-channel shall be inset with a white reflective material for increased visibility.

A serviceable wheel well liner shall be provided for each wheel well. Liner shall be constructed of Black poly.

The apparatus body structure shall be securely fastened to the chassis with 5/8" (.625) O.D. steel U-bolts. Chassis frame rails shall be lined with 5/16" (.312) x 2" fiber reinforced rubber strips to protect the body frame sills from contact with the rails.

A permanent plate mounted in the driver's compartment shall be supplied. It shall specify the quantity and type of the following fluids used in the vehicle: engine oil, engine coolant, chassis transmission fluid, and drive axle lubrication.

## **RESCUE BODY UPPER**

**Upper Interior Body Height**                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

Interior body height will be approximately 80".

**Roof configuration EA**                              **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

A flat Diamond plate roof. Sealed with silicone and bolted in place using stainless steel hardware.

Constructed with 1/8" 3003 H230 diamond plate and 3/16" thick 6061 T6 extrusion.



## RESCUE BODY REAR

### Rescue Rear Body Full Height Compartment

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

B2: rear driver side compartment shall be full height x 12" deep.

### Rescue Rear Body Full Height Compartment

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

B3: rear officer side compartment shall be full height x 12" deep.

### 10 inch tailboard

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

10" tailboard made out of 3/16" diamond plate, supported by T6 extrusions. Tailboard is gator grip and runs full width of the body. The tailboard is bolted to the body.

### Rear Body Walk-In

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Rescue Rear Body with Recessed Walk-In provision. Location: B1

B-1: Rear center entrance door shall be recessed 20 inches.

The Entry door opening is 74" high x 34" wide.

Rear end shall be composed of Aluminum plate welded together with aluminum extrusions.

## RESCUE BODY WALKIN

### Entry Door

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Aluminum entry door with sliding window. The doors external plate is made with a 3/16" painted Alum plate and an 1/8" internal plate. The door "viewed from outside of the body" shall be hinged on the right side with a stainless steel hinge. There will be 2 locking mechanisms on the latch, standard key and dead bolt. Dead bolt will be keyed unique to lock. An aluminum hand rail is provided across the door under the sliding window.

Approximate door opening sizes are 34" wide by:

- Standard entry: 80" high.
- Recessed entry: 74" high.
- DEA entry: 68.5" high.

Smooth plate entry door will take the place of the B1 compartment opening.

**Interior Counter Top** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

U-Shape Counter Top

Interior counter top will run front to rear on each side and wrap around the front of the walk-way. The counter top will be approx 30" deep on the sides, 30" deep on the front, and will stand 48" off the walkway. Counter top will be made of 1/8" alum Diamond plate and will make up the compartment top for outer compartments on both sides.

### **Rescue Body Walk in**

**Interior Features** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The interior of the walk-in body will consist of a center walkway running the length of the body. On a Straight Counter, the top will run the entire length of the body on both sides of the center walkway. On a U-Shape Counter, the top will run the entire length of the body on both sides and wrap around the front of the center walkway over L1/R1.

**Interior Dimensions** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

On a U-Shape Counter the Walkway will be approx 30" Wide x 253" Long

Interior countertop height will be 48".

**Body Entry** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The entry door opening will measure 34" wide x 80" high and will be located center of rear body.

An option to select a pass through to the cab is available for this model.

**Other Options** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Interior options are selected separately.

**Exterior Compartment Features** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be five (5) compartments per side. These compartments will be labeled L1, L2, L3, L4, and L5 on the driver's side, R1, R2, R3, R4, and R5 on the officer's side with L1/R1 located closest to the cab and L2/R2 located closest to the rear of the body ahead of the rear wheels. L1/R1 and L2/R2 to be located ahead of the rear wheels; L3/R3 and L4/R4 will be located over the rear wheels and L5/R5 will be located behind the rear wheels.

**Exterior Compartmentation Dimensions**

(all dimensions are approximate)

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

L1/R1: 48" wide x 66" height x transverse. Door opening to be 46"x66" when using hinged doors

L2/R2: 48" wide x 66" height x 26" deep. Door opening to be 46"x66" when using hinged doors

L3/R3: 54" wide x 35" height x 26" deep. Door opening to be 52"x35" when using hinged doors

L4/R4: 54" wide x 35" height x 26" deep. Door opening to be 52"x35" when using hinged doors

L5/R5: 48" wide x 66" height x 26" deep. Door opening to be 46"x66" when using hinged doors

**Body Windows**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The sliding window shall be 18" high x 40" long. Window glass shall be tinted automotive safety glass and mounted in an extruded aluminum frame. The window will be locate on the driver side above L2, of

**BODY COMPT REAR**

**Rear Body Panels**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The rear body panels shall be 3/16" aluminum smooth plate painted job color.

**LINE-X Tailboard**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

LINE-X package for welded (exterior surface only), bolt on (exterior surface only) or flip down style (exterior and interior surfaces) tailboards. Includes rear bumper overlay or manufacturer fabricated boxes mounted on the tailboard as applicable.

**RESCUE BODY INTERIOR**

**Body Interior Bench Seat**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The officer's side of the interior walkway shall have a bench seat provided with the apparatus. The bench seat shall be mounted on a 144" Seat Box with open storage below, with cargo net cover.

Heavy duty foam cushion shall be 4" thick on the seat base. The seat covering shall be heavy duty vinyl with cushion sewed beaded corners. Color of seat shall be Black.

**Seat Back(s) [Qty: 4]**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Manufacturer seat back will be located behind each seat on officer's side of the interior, and will be made of Black vinyl.

**Raceway for Counter Top**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Raceway. An aluminum raceway approx. 6 inches tall shall be provided. Raceway shall include a removable face plate(s) designed for access. The design shall accommodate a duplex receptacle installed in the removable face plate(s). Raceway shall include minor notching to accommodate clearance around obstructive components where applicable. Finish to be sanded aluminum.

Material shall be minimum of 1/8" thick smooth aluminum construction.

Locate: Counter top against forward bulkhead wall and span full width of body counter top area.

**Cabinets Upper Body**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Cabinet, overhead. Provide (8) eight aluminum overhead storage cabinets with open front. Locate: on counter top, (4) four on officer side from rear of body forward and (4) four on driver side from rear of body forward.

NOTE: With recess rear body B1 entry door option aft cabinets opening shall be 21.5 inches narrow of specified value.

Construction shall be 3/16" smooth aluminum.

Cabinets shall have a sanded aluminum finish unless otherwise specified.

All interior cabinets are to have Cargo Net Covers.

**Raceway for Counter Top**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Raceway. An aluminum raceway approx.. 6 inches tall shall be provided on top of the counter against the back wall and span full length of top area. Includes: removable face plate for access, minor notching to accommodate clearance around obstructive components where applicable and shall accommodate duplex receptacles installed in the removable face plate if applicable. Finish to be sanded aluminum.

Material shall be minimum of 1/8" thick smooth aluminum construction.

Locate: Body side wall counter top of walk in body.

**Cabinets Upper Body**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

Cabinet, overhead. Provide (2) two aluminum overhead storage cabinets (1) one each side of forward bulkhead wall. Approx. size noted on sales drawing. Includes: lift-up louvered access doors with thumb latches.

Construction shall be 3/16" smooth aluminum.

Cabinets shall have a sanded aluminum finish unless otherwise specified.

**Enclosure reel**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

Access panels to B3 Reel shall be provided as applicable. Locate interior.

**RESCUE BODY OPTIONS**

**Escape Hatch [Qty: 2]**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

A 24" x 24" escape hatch shall be installed in the roof of the walk-in rescue body. It will be made of a heavy duty aluminum frame. It will have an acrylic lens and be capable of opening in the vented position. It will have an above deck height of approximately 1" and can be used as a skylight, escape hatch and non-powered vent all-in-one. It shall be located in a manner best suited on the roof of truck.

**Front Body Trim**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The front head board of the body shall be 1/8" aluminum diamond plate.

**Stainless Steel AC Pan [Qty: 2]**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

A stainless-steel pan constructed of 14ga brushed stainless steel shall be provided for the body roof mounted A/C unit. The pan shall be equipped with a drain that does not drip on drivelines.

**Roof Mounted Air Conditioner**

**[Qty: 2]**

**Bidder Complies YES** \_\_\_\_\_ **NO** \_\_\_\_\_

The apparatus shall be equipped with a Duo-Therm Penguin Model #600315 low profile 120-volt air conditioner rated at 13,500 BTU and Heat Strip Provides 5,600 BTU of heat. The system shall include an air distribution box to cool the interior. An analog thermostatic shall be installed to maintain the desired temperature.

The air conditioning unit to be powered by the generator.

The unit shall be located: on body roof.

## **Rope Tie Off Points**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Total of six (6) rope tie off points, located above the lower body compartment door frames, shall be located on the side and rear of the body.

Forward two (2) body tie off points shall be located ahead of transverse compartments L1/R1 and two (2) located rearward of L1/R1 transverse compartments.

Total of two (2) rope tie off points, located above the rear body compartment door frames, shall be located on the rear of the body, one (1) each side.

Tie off points shall pivot 180 degrees front to back and shall have a 2.75" inside width. Tie off point shall have a precision-machined finish to protect slings and hooks from damage and excess wear during lifting and shall be made of black oxide steel.

Rated at 1000 lbs. 10:1 SF Straight line pull.

Tested to 10,000 lbs. (NFPA 1983 2012 Edition calls for 9,000 lbs.).

\*\*\*Fixed locations - FEA analysed and designed under the requirements of NFPA\*\*\*

## **DOORS**

### **Single Compartment Door**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): B2, B3

**Double Compartment Door**                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb. rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb. rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L3, L4, R3, R4

**Double Compartment Door**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb. rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb. rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L1, L2, L5, R1, R2, R5



## MISC BODY OPTIONS

**Mud Flaps** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Floor Matting** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

This unit shall have all applicable compartment floors, shelves, and trays covered with a heavy duty Turtle Tile brand Red floor matting.

**Fuel Fills** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Dual recessed fuel fills shall be provided. Locate one (1) each side in rear wheel wells.

**Anodize Aluminum Trim** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Deflector Shield [Qty: 2]** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Deflector, a deflector shield will be placed in front of the body roof mounted A/C, generator or light tower. Construction aluminum diamond plate. Deflector will be in front of the forward most component.

**Tilt Jack Location** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

The cab tilt jack shall be located R1 low on forward wall.

**Cargo Net Covers [Qty: 10]** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Cargo net for opening of storage cabinet located inside walk in rescue body side walls. Size to best accommodate cabinet openings. Cargo net to be Black 2 in x 2 in squares. Use permanent fasteners along bottom edge and snaps in other locations. Qty. is each.

**Scuff Plate [Qty: 2]** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Scuff plate, tie off point. Provide a stainless steel scuff plate for area around high body rope tie off point to protect body paint. Qty. is each.

## SCBA BOTTLE STORAGE

**SCBA Strap** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

**SCBA 1 BOTTLE STORAGE** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

The door shall match wheel well area material and finish.

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

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

Location: driver side rear wheel well offset rearward, officer side rear wheel well offset rearward.

**SCBA 3 BOTTLE STORAGE** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Manufacturer designed three (3) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

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

U-shaped troughs made out of aluminum smooth plate with rubber inserts shall be provided to store standard size SCBA bottles up to 6.75" in diameter and 24.5" in length. The upper two (2) troughs can also store a standard size 20 lbs. ABC Extinguisher or 2.5 gal. Water Extinguisher in each trough.

Location: driver side rear wheel well offset forward, officer side rear wheel well offset forward.

**SCBA 2 BOTTLE STORAGE** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

Manufacturer designed two (2) SCBA bottle storage (1 bottle storage per door) constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The doors shall match wheel well area material and finish. The doors shall be hinged at the center with one door facing forward and other door facing rearward.

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

Location: driver side rear wheel well centered in tandem, officer side rear wheel well centered in tandem.

## **ELECTRICAL SYSTEMS**

**Multiplex Electrical System**                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

### **Electrical System**

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

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

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

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

**Multiplex System**                                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

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

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.

- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

**Wiring** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

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

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

**Wiring Protection** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

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

**Wiring Connectors** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**NFPA Required Testing of Electrical System** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**1. Reserve capacity test:**

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

**2. Alternator performance test at idle:**

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

**3. Alternator performance test at full load:**

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

**4. Low voltage alarm test:**

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

**NFPA Required Documentation**                      **Bidder Complies**    **YES** \_\_\_\_\_                      **NO** \_\_\_\_\_

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

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

**Vehicle Data Recorder**                                      **Bidder Complies**    **YES** \_\_\_\_\_                      **NO** \_\_\_\_\_

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

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

**Occupant Detection System**                                      **Bidder Complies**    **YES** \_\_\_\_\_                      **NO** \_\_\_\_\_

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

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

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

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

**Multiplex Display** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7"
- Master warning switch
- Engine high idle switch
- Five (5) tactile switches to access secondary menus
- Eight (8) multi-function programmable tactile switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

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

**Electrical Connection Protection** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

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

**Smart Truck Technology** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

#### **User Interface**

The apparatus shall be equipped with a smart truck technology system designed specifically for first responder apparatus. The system shall interconnect major apparatus CAN networks including but not limited to the chassis J1939/OBD2 data, vehicle multiplex system, water pump pressure

governor, electric valves and electric actuated deck gun. The system shall securely report real-time vehicle information from these systems via cellular data to a globally supported cloud computing service for storage and real time access via web dashboards. The dashboards shall be accessible by the department's computers, tablets and smartphones.

The smart truck technology installed on the apparatus shall provide real-time notification via text or e-mail when a check engine light is displayed. The notification shall include the fault code and brief explanation for the code to reduce down-time.

The system shall feature a truck down feature on the web-based user interface to allow instant notification of needed apparatus service to both the authorized dealership and OEM via text or e-mail.

The system shall provide remote diagnostics of vehicle subsystems such as VMUX, pressure governors, electric monitors and electric valves.

By use of the web based user interface, the system shall allow for over the air programming updates to various subsystems should the need arise.

The web-based user interface shall also provide the following:

- Fuel and DEF levels
- GPS tracking
- Data logging for apparatus multiplex system
- Easy access to the NFPA VDR data

The smart truck technology shall also feature seamless integration to the HAAS ALERT Safety Cloud providing Responder to Vehicle (R2V) alerts to motorists using navigation apps such as WAZE.

The system shall be designed with an open architecture to incorporate future growth with new technology partners designed to enhance fireground operations

## **Hardware**

### **Vehicle Gateway**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The vehicle gateway module shall be rugged in construction using a durable cast aluminum enclosure designed for emergency vehicle applications. The module shall have sealed Deutsch connectors providing four (4) CAN network ports, one (1) RS-485 port, one (1) Ethernet RJ45 port, one (1) USB port, embedded cellular modem, Bluetooth and GPS capability. The IoT Core Vehicle Gateway shall be capable of 2 way vehicle telemetry, supporting both remote diagnostics and remote over-the-air software updates.



**Antenna** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A low profile cellular antenna shall be installed on the cab roof.

**Data Plan** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A 5 year data plan shall be provided with the initial vehicle purchase. At the end of the 5 year period the department shall be given the option to extend service.

## **LIGHT BARS**

**Opticom Traffic Emitter** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A GTT (Global Traffic Technology) model 795H LED Opticom shall be provided centered in the forward facing Whelen Freedom IV light bar.

A switch shall be provided accessible to the driver to activate the emitter. The emitter switch shall be wired through master warning switch and/or the application of the park brake.

**Light Bar Mount** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Front Light Bar Color(s)** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

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

**Light Bar** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

No rear facing LEDs.

The light bars shall have clear lenses.

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

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

# WARNING LIGHT PACKAGES

## Lower Level Warning Light Package

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Ten (10) Whelen M6R Super LED red light heads shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Two (2) on the front of the apparatus facing forward
- Two (2) on the rear of the apparatus facing rearward
- Four (4) lights each side of the apparatus, one (1) each side at the forward most point (as practical), and one (1) each side at the rearward most point (as practical).
- Two (2) lights each side of the apparatus, one (1) each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, in rear wheelwell offset to front and on fixed panel aft of rear most body compartment.

All warning devices shall be surface mounted in compliance with NFPA standards.

## Rear Upper Side Level Warning Lights

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Two (2) Whelen M-Series Super LED model M9RC red light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

The light heads shall be mounted as close to the corner points of the apparatus (as practical) as follows:

One (1) light each side on the rear of the apparatus, one (1) on driver side and one (1) on officer side upper rear corners (as practical).

All warning devices shall be mounted in compliance with NFPA standards.

# WARNING LIGHTS

## Hazard (Door Ajar) Light

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

The light shall be located center overhead.

**Warning Lights**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Two (2) Whelen M6 series Linear Super LED red light heads with red lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: one (1) each side rear wheel well offset to rear.

**Warning Lights**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Two (2) Whelen M9RC Series Linear Super LED light heads with red LED and clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: Centered (approximately) on upper body side panels, one (1) each side of body on forward upper body corners, one (1) each side of body on rearward upper body corners.

**Warning Lights**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Two (2) Whelen model M2R Super LED red light heads (red LEDs with red lens) shall be provided.

The rectangular lights shall include chrome flanges. The lights shall be wired with weatherproof connectors.

Specifications include:

- Surface mounted
- Patented Linear LED reflector assembly
- Sealed assembly
- Mounting gasket
- Multiple Scan-Lock flash patterns available
- Chrome mounting flange

Location: one (1) each side centered below forward compartments in rubrail if equipped, one (1) each side rear facing corners of tailboard in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

**Warning Lights**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Two (2) Whelen M9 Series Linear Super LED light heads (blue driver, red officer) with clear lens shall be provided. The lights shall include chrome flanges where applicable.

Location: one (1) on each side up high rear of body.

**Warning Lights**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Two (2) Whelen C-Series model C6L Super LED light heads shall be provided. The lights shall be Red with red lenses. The rectangular lights shall include chrome flanges where applicable.

Location: one (1) each side of cab down low just ahead of rear doors.

**DIRECTIONAL LIGHT BARS**

**Directional Light Bar Control**

**Location**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The directional light bar control head shall be located in the center overhead console offset to driver side.

**Directional Traffic Warning Light**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

One (1) Whelen TAL65 LED 36" long Traffic Advisor with amber LEDs' and clear lenses shall be provided.

The directional bar shall include a TACTLD1 control head. The control head shall include a remote flash control and end lamp enable/disable feature.

The light shall be installed at the rear of the body to direct traffic around the vehicle.

**SIRENS**

**Electronic Siren**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

**Electronic Siren Control Location**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The electronic siren control shall be located in the center overhead.

**Mechanical Siren**

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.

The siren shall be located driver side front bumper.

## SPEAKERS

### Siren Speaker

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT with the manufacturers' name on the grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

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

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located officer side front bumper.

## DOT LIGHTING

### License Plate Light

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

### LED Marker Lights

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

LED clearance/marker lights shall be installed as specified.

#### Upper Cab:

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

#### Lower Cab:

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

#### Upper Body:

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

#### Lower Body:

**Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

- Three (3) red Trucklite LED clearance lights centered at rear, recessed in the rubrail.

- One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.
- One (1) amber Trucklite LED clearance light each side front of body, recessed in the rubrail.
- One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body, recessed in the rubrail.

**Marker Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

One (1) pair of Britax model L427.203L.12V LED amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall illuminate to the rear of the apparatus and the amber shall illuminate to the front of the apparatus. The lights shall be wired to the marker light circuit.

**Tail Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a four (4) light vertical housing each side at rear and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic housing shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the M6 or equivalent lower NFPA warning light.

**Additional Amber Marker Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A rectangular shaped Trucklite Model 21 LED clearance light with an amber colored lens shall be installed. The lights shall be located one (1) each side just ahead of rear wheels in rubrail if equipped.

**Additional Red Marker Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A rectangular shaped Trucklite Model 21 LED clearance light with a red colored lens shall be installed. The lights shall be located one (1) each side just behind rear wheels in rubrail if equipped.

**License Plate Bracket** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Additional Amber Marker Lights Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

A rectangular shaped Trucklite LED clearance light with a amber colored lens shall be installed. The lights shall be located each side of body up high, centered.

**Additional Amber Marker Lights [Qty: 4] Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

A rectangular shaped Trucklite LED clearance light with an amber colored lens shall be installed. The lights shall be located each side of body up high, centered.

**Turn Signals Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

A pair of Weldon model 9186-8580-29 bubble style LED amber auxiliary turn signals with stainless steel bezels shall be installed.

Location: one (1) each side in center of rear tandem wheel well offset to rear.

## **LIGHTS - COMPARTMENT, STEP & GROUND**

**Medical Cabinet Lighting [Qty: 2] Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

One (1) Hansen LED compartment light strip shall be mounted in the medical cabinet(s).

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

The light shall be controlled by a compartment door switch.

**Compartment Light Package Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Two (2) Hansen compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights located two (2) each side.

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

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

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

**Crew Compartment Dome Lights**

**LED [Qty: 4]**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

There will be a pair of TecNiq model E08-LCR0-1, 8-inch diameter 12 volt recessed red/clear LED lights shall be RECESS mounted into the ceiling of the walk-in body. Each lamp will be round and be switched near the door opening. Lights will be switched according to light color (if applicable).

These lights will run in two (2) rows, evenly spaced from front to rear. Light color will alternate front to back and side to side (if applicable).

**Step Lights**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the steps around the apparatus in accordance with current NFPA requirements. The lights shall be 4" circular with clear lenses (2" if space is limited) mounted in a resilient shock-absorbent mount for improved bulb life. The wiring connections shall be made with a weather-resistant plug-in style connector.

The step lights shall be switched from the cab dash with the work light switch.

**Walk-In Rescue Body Lighting**

**Controls**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A switch plate for interior lighting controls shall be located officer's side interior walkway wall adjacent to door opening. It shall accommodate a quantity of six (6) rocker switches. It will be illuminated and labeled per each switch's function.

If lighting controls do not meet rocker switch quantity, the unused remaining spaces will be filled with spare switches.

**Ground Lights**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

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

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

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



## LIGHTS - DECK AND SCENE

**Scene Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Two (2) Whelen model M9 series Linear Super LED clear scene lights shall be provided.

Each shall have Linear Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light without the use of angle brackets.

The lights shall be located Centered (approximately) on upper body side panels and be controlled by a switch in cab accessible to driver (lights on sides of apparatus to be switched separately).

**Scene Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Two (2) Whelen model M6ZC series Linear Super LED clear scene lights shall be provided.

Each shall have Linear Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light without the use of angle brackets.

The lights shall be located one (1) each side of body rear facing up high and be controlled by a switch in cab accessible to driver (lights on sides of apparatus to be switched separately).

## LIGHTS - NON-WARNING

**Map Light** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A Federal "Littlite" LED map light model LF18-LED shall be supplied. The map light shall be 12 volt with 18" flexible gooseneck and a matte black finish. The light shall have a switch provided for white or red illumination. It shall be located at officer's A post.

**Backing Lights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A pair of Zico ZQL-SS-H7614 sealed beam backing lights shall be provided. The lights shall have a polished stainless steel housing. Each light shall provide additional lighting for backing the vehicle and shall operate when the vehicle is placed in reverse.

The lights shall be located rear wheel well offset to rear.

**Engine Compartment Light** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lense, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

# CONTROLS / SWITCHES

**Door Ajar Alarm** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Additional Switch** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

A 12 volt switch shall be provided.

The switch shall be located officer's side switch panel for Q2B brake.

**Foot Switch** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

A heavy duty metal engine cover mounted clamshell switch shall be installed to operate the Q2B siren. It shall be located officer side engine cover.

**Foot Switch** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

A heavy duty metal engine cover mounted clamshell switch shall be installed to operate the electronic siren. It shall be located officer side engine cover.

**Switch** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

A relay shall be provided to allow operation of the specified 110/240 volt device from a remote location other than the circuit breaker box. The relay shall be mounted in a weather resistant enclosure mounted near the breaker box or as instructed from engineering. A remote switch shall be mounted as specified.

Location: programmed to multiplex display for driver's side cab/body 120/240V scene light(s), programmed to multiplex display for officer's side cab/body 120/240V scene light(s).

**Cab Tilt Switch** Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_

The cab tilt shall be controlled by Ramsey weatherproof momentary action push-button switches connected to a cord. The cord shall control tilting and lowering functions of the cab and have an extended length of 36”.

The plug-in for the control shall be located next to manual cab tilt pump.

**Clamshell Switch****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A heavy duty metal engine cover mounted clamshell switch shall be installed to operate the Q2B siren brake. It shall be located officer side engine cover.

**CAMERAS / INTERCOM****Camera Back-Up****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be a Voyager camera model number VCCS150B provided mounted on the rear of the apparatus. The camera shall feature a wide angle lens, IR LED assisted illumination for enhanced low-light performance, non-corrosive mounting bracket, and stainless steel hardware. The camera shall be interlocked with the chassis transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

The camera shall having the following specifications:

- NTSC/PAL Video output signal format
- 150° Viewing angle
- Housing: Aluminum
- Waterproof: IPX7
- Built-in microphone
- Dimensions: 2.7" W x 1.7" H x 2.5" D

The camera shall be located at the rear of the truck, up as high as possible. Optimize mounting position using space not allocated by other equipment/options unless otherwise specified.

**Camera, Officer Side****Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be a Voyager camera model number VCMS36RCM provided mounted on the officer's side front cab corner. The camera shall feature high performance color optics, a wide angle lens and IR LED assisted illumination for enhanced low-light performance. The camera shall be interlocked with the right turn signal. When the apparatus' right turn signal is activated the officer's side camera shall automatically be activated and when the turn signal is canceled shall return to the previously displayed screen.

The camera shall having the following specifications:

- Waterproof (IPX7 rated)
- NTSC Video Output Signal Format
- Sensitivity: 0 Lux
- 102° Horizontal viewing angle
- Dimensions: 1.68" W x 2.19" H x 3.31"D

**Intercom** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

A Fire Research (ICA200-A20) brand two-way intercom system shall be installed from the body interior to the vehicle cab. Includes master cab station with volume control and push-to-talk and remote open microphone speaker in the body.

## MISC. ELECTRICAL

**Receptacle Portable Winch** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

One (1) Anderson 12 volt electrical receptacle shall be installed for a portable winch system. The power cables shall be color coded "red" for positive and "black" for neutral and rated at 125% of winch power requirement.

The receptacle shall include a dust cover.

The cables shall be run in protective conduit for mechanical protection and equipped with circuit breaker protection at battery area.

**Alternating Headlights** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

**Trailer Hitch Pre-Wire Harness** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

There shall be a pre-wire assembly provided under the rear of the apparatus for future installation of a trailer hitch pin connector. The coiled wire harness shall include wires from the stop light circuit, marker light circuit, turn signal circuit and a ground. It shall be rated at 3 amps.

**Trailer Wiring Connector** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The trailer wiring shall be terminated with a 7 pin connector. The connector shall be wired to the stop/turn/tail circuits only.

**Back-Up Alarm** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

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

**Electrical Location** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Locate electrical components in lower forward L1 back wall. Compartment depth will be limited by approximately 6".

Electrical components on a multiplex system will include:

1. All PDM's
2. Relay Panel
3. Strobe Packs
4. Flashers

Electrical components on a non-multiplex system will include:

1. Relay Panel
2. Strobe Packs
3. Flashers

**Receptacle(s) Portable Winch Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Two (2) Anderson 12 volt electrical receptacles shall be installed for a portable winch system. The power cables shall be color coded "red" for positive and "black" for neutral and rated at 125% of winch power requirement.

The receptacles shall include a dust cover.

The cables shall be run in protective loom for mechanical protection and equipped with circuit breaker protection at battery area.

Location: One (1) at each side body wheel well compartment.

### **12 Volt DC Power Distribution Module**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

A Blue Sea model 5032 12 place, split bus fuse block with ground, 12 volt DC power distribution module shall be provided. The module shall provide two isolated groups of six circuits, and shall be wired through switched hot and battery hot, and include a battery ground.

Location: behind officer's seat.

# GENERATOR

## 10KW Hydraulic Generator

## NO EXCEPTIONS

A Smart Power Model #ER110 modular style 10,000 watt hydraulic generator shall be provided. The generator shall be installed optimize mounting position in top storage pan using space not allocated by other equipment unless otherwise specified.

The unit shall come equipped with: modular generator unit (which includes the hydraulic motor and filter, generator, hydraulic reservoir and cooler), axial piston hydraulic pump and a gauge panel.

The gauge panel shall display voltage, hour meter, frequency, and amperage.

The hydraulic motor, generator, blower, cooler, and necessary hydraulic components shall be mounted in a rugged steel case.

The modular generator unit shall be 33.5" long x 15.75" wide x 13.75" high and weigh approximately 130 pounds.

The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).

A generator control / PTO engage switch shall be mounted on the cab instrument panel to engage the PTO and start the generator.

### Ratings and Capacity

Rating:	10,000 watts instantaneous 10,000 watts continuous
Volts:	120/240 volts
Phase:	Single, 4 wire
Frequency:	60 Hz
Amperage:	83 amps @ 120 volts or 42 amps @ 240 volts
Engine speed at engagement:	Recommend below 1000 RPM
Operation range:	850 to 3240 RPM

### Testing

The generator shall be tested in accordance with current NFPA 1901 standards.

### Notes

- All ratings and capacities shall be derived utilizing current NFPA 1901 test parameters.
- Extreme ambient temperatures could affect generator performance.

## GENERATOR TEST

**3rd Party Generator Testing**                      **Bidder Complies**    **YES**\_\_\_\_\_    **NO**\_\_\_\_\_

The generator shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions and testing of the generator shall be as outlined in current NFPA 1901.

The test shall include operating the generator for two (2) hours at 100% of the rated load. Power source voltage, amps, frequency shall be monitored. The prime mover's oil pressure, water temperature, transmission temperature (if applicable) and power source hydraulic fluid temperature (if applicable) shall be monitored during testing.

The results of the test shall be recorded and provided with delivery documentation.

## BREAKER BOXES

**Circuit Breaker Panel**                                      **Bidder Complies**    **YES**\_\_\_\_\_    **NO**\_\_\_\_\_

A sixteen (16) place breaker box with up to sixteen (16) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according to the generator output. The breaker box will be located in the specified compartment, not to exceed 12' run of wire.

Note: If generator is 5.5KW or less, the main breaker will occupy two (2) places, leaving fourteen (14) available.

Dimensions: 17.92" high x 14.25" wide x 3.75" deep.

Location: L1 forward wall.

## LIGHTS - QUARTZ

**Whelen Pioneer 120V Flood Light**    **Bidder Complies**    **YES**\_\_\_\_\_    **NO**\_\_\_\_\_

A Whelen Pioneer Plus series 120V flood light model PFP2AC dual panel light head shall be provided in a model PBA203 recess mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4-5/8" high by 3" deep and have a white powder coat finish. The light fixture shall have a dual panel (4) clusters of LED lamps with molded vacuum metalized reflector that draws 1.25 amps and produce 11,000 usable lumens.

The light shall be located Forward upper body panel officer side (inboard of warning lights if equipped), Forward upper body panel driver side (inboard of warning lights if equipped), Rearward upper body panel officer side (inboard of warning lights if equipped), Rearward upper body panel driver side (inboard of warning lights if equipped).

**Whelen Pioneer 12V LED  
Flood Light**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A Whelen Pioneer Plus series 160 watt 12V flood light model PFH2 dual panel LED flood light head shall be provided with a PBH203 recess mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a white powder coat finish. The recess mounting flange shall be 17.25" wide by 8" high with a chrome finish. The light fixture shall have thirty-six (36) white Super-LEDs with molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens.

Location(s): on rear body, rear facing, officer side, as high as possible (below warning and scene lights if equipped), on rear body, rear facing, driver side, as high as possible (below warning and/or scene lights if equipped).

**Whelen Pioneer 12V LED  
Flood Light [Qty: 2]**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A Whelen Pioneer Plus series 160 watt 12V flood light model PFH2 dual panel LED light head shall be provided on a cab brow mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have thirty-six (36) white Super-LEDs with molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens.

Location(s): driver and officer side front cab brow, driver and officer side over rear cab door.

**RECEPTACLES**

**Receptacle**

**Bidder Complies YES \_\_\_\_\_ NO \_\_\_\_\_**

A 20 amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source.

Location: In cab officer side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), L1 high on forward wall, L1 High by ceiling, L2 high on forward wall, L3 high on forward wall, R1 high on forward wall, R1 high by ceiling, R2 high on forward wall, R3 high on forward wall, L4 high on forward wall, R4 high on forward wall.





**Rollers, Cord Reel**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

Rollers, stainless steel cord reel rollers shall be installed and located through a panel.

The rollers shall be located on support bracket.

The rollers shall facilitate smooth removal of the electric cord.

**MISC LOOSE EQUIPMENT**

**DOT Required Drive Away Kit**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

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

**EXTERIOR PAINT**

**Paint Break with Dip to Grille**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

The cab shall have a two-tone paint break. The break line shall be approximately 31.5 inches below the cab roof drip rail. The paint break shall include a dip down to the corners of the cab grille.

**Paint Custom Cab**

**Bidder Complies YES\_\_\_\_\_ NO\_\_\_\_\_**

The apparatus cab shall be painted Sikkens FLNA3051 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

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

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

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.

- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

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

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

**Paint Cab Two-Tone Color**                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

The upper section of the cab shall be painted FLNA4006 White.

The paint process of the secondary cab color shall be the same as the primary color.

**Paint Body Large**                                      **Bidder Complies**    **YES** \_\_\_\_\_    **NO** \_\_\_\_\_

The apparatus body shall be painted Sikkens FLNA3051 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

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

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

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.

- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

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

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

**Undercoating** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Undercoating shall consist of a heavy coating of soft seal film sprayed on the entire underside of the vehicle to repel water and road elements. Shall be applied after customer final inspection.

## INTERIOR PAINT

**Cab Interior Paint** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

## STRIPING

**Striping** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Reflective striping shall be provided and installed by the dealer/customer.

**Reflective Stripe in Rubrail** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

The reflective stripe in the body rubrail shall be black.

**Scotchlite Cab Stripe** **Bidder Complies** YES \_\_\_\_\_ NO \_\_\_\_\_

Scotchlite cab stripe shall be 3/4" in width. Stripe shall be centrally located and shall contour with the cab, following the paint break. Color of the stripe shall be as specified by the customer.

**Rear Body Reflective Striping**                      **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

Chevron style Reflexite V98 striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

**Designated Standing / Walking Area Indication**

**Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

**GRAPHICS**

**Logo**

A manufacturers' logo shall be provided on each of the rear vertical M6 tail light housings.

**SUPPORT, DELIVERY, INSPECTIONS AND MANUALS**

**Approval Drawings**                                      **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator's position, scaled the same as the elevation views.

**Electronic Manuals**                                      **Bidder Complies**    YES \_\_\_\_\_    NO \_\_\_\_\_

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.



**Lifetime Frame Warranty**

**NO EXCEPTIONS**

The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

**10 Year 100,000 Mile Structural Warranty**

**NO EXCEPTIONS**

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

**10 Year Paint and Corrosion Warranty**

**NO EXCEPTIONS**

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

**Topcoat & Appearance:**

(Gloss, Color Retention, Cracking)

0 to 72 months	100%
73 to 120 months	50%

**Coating System, Adhesion & Corrosion:**

(Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling)

0 to 36 months	100%
37 to 84 months	50%
85 to 120 months	25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

**25 Year Frame Rail Corrosion Warranty****NO EXCEPTIONS**

The chassis manufacturer shall provide a 25-year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

**20 Year Frame Components Corrosion Warranty****NO EXCEPTIONS**

The chassis manufacturer shall provide a 20-year corrosion warranty on the galvanized chassis frame components. This warranty shall cover the front frame extensions, chassis crossmembers (from engine rearward), battery tray brackets and rear underbody support (if applicable) for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.



**CITY OF WARWICK**

**BID AND CONTRACT FORM**

**TITLE OF SPECIFICATION:** Bid2019-174 Custom Tandem Axle  
Walk-In Heavy Rescue

**I. BID:**

WHEREAS, the CITY OF WARWICK has duly asked for bids for performance of services and/or supply of goods in accordance with the above-indicated specifications.

The person or entity does irrevocably offer to perform the services and/or furnish the goods in accordance with the specifications, which are hereby incorporated by reference in exchange for the bid price.

This offer will remain open and irrevocable until the CITY OF WARWICK has accepted this bid or another bid on the specifications or abandoned the project.

The bidder agrees that acceptance by the CITY OF WARWICK will transform the bid into a contract. This bid and contract will be secured by Bonds, if required by the specifications.

**Pricing as Follows**

**Continued next page**

**PLEASE COMPLETE THIS PAGE & SUBMIT WITH YOUR BID**

**Bid2019-174 Custom Tandem Axle Walk-In Heavy Rescue**

Description	Bid
Make	
Model	
Warranty	
Total Base Bid	\$
Savings for Pre-Payment of \$150,000.00	\$ deduct
<b>Sub-Total Base Bid &amp; Pre-Payment Savings</b>	<b>\$</b>
Mounting Allowance for Department Supplied Equipment	\$15,000.00 add
Shelf/Tray Allowance	\$15,000.00 add
<b>Total Bid Including Allowances</b>	<b>\$</b>
Delivery in Calendar Days After Receipt of Order	
<b><u>Options:</u></b>	
1 –A complete NFPA 1911 apparatus inspection and bi-annual Preventive Maintenance service, performed at the Warwick Fire Station, for a term of 5 years	\$ /5 years
2 – Extended warranty non-wearable items	\$ # years ____
3 – Extended warranty bumper-to-bumper	\$ # years ____
4 – Extended warranty tandem rear axles	\$ # years ____
5 – Extended warranty Ridewell rear suspension	\$ # years ____
6 – Extended warranty engine and transmission	\$ # years ____
7 – Install 2 customer supplied VHF Radios	\$
8 – Install 1 customer supplied Mobile Vehicle Repeater	\$

**Please list additional warranty options (if applicable)**

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