

**Department of Public Affairs  
Department of Fire and Rescue Services  
Reading, PA**

**SPECIFICATIONS**

Bids will be received for a municipal purchase of a fire truck. Bid is per vehicle specification below.

Bid is per vehicle specification below. Bids are due no later than 3:00 p.m. on August 16, 2016.

**QUESTIONS/ADDENDUM REGARDING SPECIFICATIONS OR BID PROCESS**

To ensure fair consideration for all bidders, the City prohibits communication to or with any department or division manager or employee during the bid process with the exception of those questions relative to interpretation of specifications of the bid process. Such questions shall be submitted to the Purchasing Coordinator in writing by 2PM, August 9, 2016.

Tammi Reinhart  
Purchasing Coordinator  
City of Reading  
City Hall, Room 2-45  
815 Washington Street  
Reading, PA 19601-3690  
610-655-6427 (fax)  
tammi.reinhart@readingpa.gov

**GENERAL REQUIREMENTS**

1. All components, parts, and equipment shall be balanced to provide maximum performance.
2. Unless otherwise specified, each unit shall include all specific accessories, parts, and equipment plus the options made available for the indicated model by the vehicle manufacturer and shall conform to the best quality standards that are known to that particular industry. Vehicle will be delivered with Manufacturer Specification Sheet.
3. Each unit shall be complete with accessories, equipment, parts, and options as listed and each shall be properly installed and operative.
4. Each unit shall be cleaned, lubricated, and serviced, ready for immediate use.
5. Each unit shall be protected to -34 degrees Fahrenheit below zero with permanent type anti-freeze coolant.
6. Each unit shall be free of dealer signs and emblems.
7. The unit shall conform to all the requirements of the Pennsylvania Motor Vehicle Code and shall display the latest applicable Pennsylvania Official Inspection Sticker. In any and all instances where specified items may effect vehicular safety in a negative manner, even though not in conflict with State and Federal law, bidder

shall notify the City Purchasing Coordinator in writing before submission of the bid and in time for modification/s or withdrawal of specifications.

8. Each unit shall include the proper form to apply for Pennsylvania title and license.
9. Each unit shall include all manufacturers' Service Coupons and/ or Certifications, along with Service and Warranty Policy and Verification Vouchers.
10. The successful bidder shall comply with the manufacturer's recommended pre-delivery service.
11. One shop repair service manual and complete parts catalogue to be included
12. The unit must be manufactured in the United States of America.
13. Earliest date of delivery to be considered. As soon as possible is not acceptable.

One (1) Intent of Bid Proposal Specifications Y\_\_N\_\_  
INTENT OF BID PROPOSAL SPECIFICATIONS

It is the intent of this bid proposal to provide specifications covering the design, manufacture and delivery of a complete fire apparatus, equipped as specified herein, to the purchaser; with the intent to obtain the best results and the most acceptable apparatus for emergency service use in the community of the purchaser. These specifications cover the general requirements as to the type of construction and performance to which the apparatus shall conform, together with certain details as to finish, equipment and appliances that will be provided by the apparatus manufacturer. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design, engineering and construction of all features.

One (1) Compliance with NFPA 1901 Y\_\_N\_\_  
COMPLIANCE WITH NFPA 1901

The National Fire Protection Association Standard "NFPA 1901 - Standard for Automotive Fire Apparatus - Current Edition" (hereinafter referred to as NFPA 1901) in effect at the time of the purchase shall be used as a reference and its requirements shall be met by the apparatus manufacturer. The apparatus shall be constructed in accordance with federal and state laws at the time of bid. Any federal, state or NFPA amended changes that shall affect the cost of producing said apparatus shall be charged to the purchaser. Mandatory minor apparatus equipment as stated in the applicable paragraphs (5.8, 6.7, 7.7, 8.8, 9.8, 10.5, 11.9 and respective subparagraphs) of the NFPA standard shall not be provided unless specifically stated and listed in purchaser's written specifications.

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

One (1) Purchaser's NFPA 1901 Responsibilities Y\_\_N\_\_  
PURCHASER'S NFPA 1901 RESPONSIBILITIES

In accordance with NFPA 1901, current edition, it shall be the responsibility of the

purchaser to specify the following details of the apparatus:

- Its required performance, including where operations at or above elevations of 2000 ft. or on grades greater than 6 percent are required.
- The maximum number of firefighters to ride within the apparatus.
- Specific electrical loads that are to be part of the minimum continuous electrical load defined in 13.3.3 of NFPA 2003.
- Any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of the NFPA 1901 standard in effect at the time of the bid. Equipment weight and location on the apparatus are the responsibility of the purchaser as a prerequisite of defining the loaded vehicle's vertical center of gravity for rollover stability calculations, when required.

One (1)

Errors and Omissions  
ERRORS AND OMISSIONS

Y\_\_N\_\_

Any error or omission in the specifications shall be reported immediately to the purchaser for correction, prior to bidding.

Any exemptions taken from the proposed specifications should be noted on an addendum/separate page separate of the specification pages. Failure to do so will result in rejection of the bid from the manufacturer in violation.

\*\*\*\*\*Any bidders taking total exceptions shall be disqualified from bid process.

EQUVALENT BIDS

Y\_\_N\_\_

EQUIVALENT BIDS: When brand or trade names, or items of a specific design are used in the bid invitation, it is for the quality, style and features. Bids on equivalent items of substantially the same quality, style and features are invited. However, to receive consideration, such equivalent bids must be accompanied by sufficient descriptive literature and/or specifications to clearly identify the units and provide for competitive evaluation.

One (1)

Single Source Manufacturer - Custom Chassis  
SINGLE SOURCE MANUFACTURER

Y\_\_N\_\_

Because of the intricacies of modern fire apparatus design, bids will only be considered from single source apparatus manufacturers. A single source manufacturer is defined as a manufacturer who designs, engineers and manufactures the entire apparatus in the factory of the bidder. The use of commonly incorporated components such as the diesel engine, the transmission, the pump, lighting fixtures, etc. is acceptable. However, calling the cab/chassis/drivetrain or the outriggers/torque box/aerial device a "component" shall not be acceptable. Single source warranty and service and its distributors, sales representatives and service network shall be provided to insure parts availability and undivided warranty responsibility. **There shall be no exceptions to these conditions.**

One (1)

PROOF OF DEVELOPMENT AND PRODUCTION OF TRACTOR DRAWN AERIAL APPARATUS

Y\_\_N\_\_

Bidder must show proof of having developed, assembled, and produced tractor drawn aerial apparatus for a period not less than 10 years from the time the bid process closes, and provide 5 career departments currently using said type apparatus.

**NO EXCEPTIONS**

One (1) Completion Date (Enter Days in Qty) Y\_\_N\_\_  
COMPLETION DATE

Barring any significant change in our current backlog of orders, and delays due to strikes, war or international conflict, failures to obtain materials, or other causes beyond our control not preventing, the apparatus and equipment detailed in the attached specification shall be delivered to you within approximately **Three Hundred Sixty (360) Calendar Days** after receiving the complete order and signed approval drawing. It shall be understood and agreed that changes requested after the pre-construction conference and the resulting signed change orders and approval drawings, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

One (1) Proposal Drawings - Bid Reply Y\_\_N\_\_  
PROPOSAL DRAWINGS

Full size, blueprint type drawings of the apparatus being proposed shall be included with the bid package. The drawings shall be drawn to scale on a CAD system to ensure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The drawing also shows the wheelbase and overall dimensions of the apparatus, proposed compartment sizes and features, position and the location of all emergency warning equipment, work lights, seating and other major items that are to be provided on the apparatus.

One (1) Break Down of Discount Y\_\_N\_\_

**Break down of discount revealed in bid:** Bidder shall specify any discounts to overall price depending on money paid within 90 days of contract signing. The City wants to know what the cost would be if we are requesting to put 90-95% money down at time of purchase.

One (1) Bid Bond - 10% Y\_\_N\_\_  
BID BONDS

Each bidder shall supply with their bid proposal a bid bond in the amount of 10% of the proposed contract amount. Bid Bonds by salesmen or agents of the manufacturer are not acceptable. Bids must remain firm for a period of 60 days. All required insurance coverage shall be underwritten by insurers legally allowed to conduct business in all states of the U.S. and shall have a policy holders rating of "A" or better in the latest evaluation by A. M. Best Co.

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

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

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

compliant.

One (1) Performance Bond - 100% Y\_\_N\_\_  
PERFORMANCE BOND

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

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

One (1) Approval Drawings Y\_\_N\_\_  
APPROVAL DRAWINGS

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

One (1) Change Orders Y\_\_N\_\_  
CHANGE ORDERS

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

Four (4) PRE-CONSTRUCTION CONFERENCE Y\_\_N\_\_

One (1) "Pre-Construction" conference trip for four (4) representatives of the purchaser shall be included in the bid. The conference shall be held at a company facility or an authorized representative's facility during normal business hours, Monday - Friday. All cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the trip. The conference shall be held prior to the commencement of any work being done on the apparatus. Factory sales and engineering personnel shall participate in the conference as needed to ensure that the apparatus fulfills all the requirements of the accepted bid. Authorized representatives from both the purchaser and manufacturer shall approve and sign any changes made during these meetings prior to the commencement of any work being done on the

Travel arrangements to a facility over 150 miles shall be made by air.

One (1) Digital Pictures IPO In-Process Inspection Y\_\_N\_\_  
DIGITAL PICTURES

Digital pictures shall be taken of the apparatus in place of an "In-Process" inspection. On a given day determined by the manufacturer, pictures shall be taken of the apparatus. Depending upon the type of apparatus, the pictures may include any or all of the following: cab interior and exterior, pump operators stand, body and aerial device.

Pre-Paint INSPECTION TRIP

One (1) pre paint inspection trip for (2) representatives of the purchaser shall be included in the bid. The inspection shall take place when all fabrication is complete and prior to being painted at the company facility during normal business hours, Monday-Friday. The cost of the transportation, meals and lodging shall be included. A representative of the company shall accompany the purchase reps on the inspection.

One (1) Final Inspection - Y\_\_N\_\_  
FINAL INSPECTION TRIP

One (1) "Final" inspection trip for **Three (3)** representatives of the purchaser shall be included in the bid. The inspection shall take place at a company facility or an authorized representative's facility during normal business hours, Monday - Friday. The cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the inspection trip.

One (1) Pre-Delivery Road Trip and Final Factory Checklist Y\_\_N\_\_  
PRE-DELIVERY ROAD TRIP AND FINAL FACTORY CHECKLIST

Prior to delivery, the completed apparatus shall be thoroughly inspected by the factory. This inspection shall include road testing by the factory of no less than 100 miles. During the factory inspections and road testing, a checklist shall be utilized by factory personnel to document the inspection and road test results. The checklist shall include:

- Documentation of the make, model and serial numbers of all major components such as the engine, transmission, pump, axles, etc.
- Complete, comprehensive operational check of all chassis/drive train components and fluid levels.
- A comprehensive review of the entire exterior and interior of the apparatus for fit and finish, checked against the customer's pre-construction meeting approval specifications, and any ensuing change orders.
- A thorough test of all driving systems under actual highway and city driving conditions, for no less than 100 miles.

One (1) Final Delivery Y\_\_N\_\_  
DELIVERY

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

One (1) Familiarization - Aerials Y\_\_N\_\_  
FAMILIARIZATION

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

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

A factory field service technician shall provide instruction to the Fire Department regarding the aerial device. The familiarization period shall consist of up to three (4) daytime sessions over a period of four (4) days over during the normal work week (Monday - Friday). The number, length and time of the sessions may vary due to the nature of the apparatus and availability of attendees and must be approved by the factory in advance. Evening sessions may be arranged in advance with the Manufacturers Fire Apparatus Service Department under special circumstances. Due to scheduling, advance notice must be received in writing at least three (3) weeks prior to shipment or date of instruction and will be considered on a first come, first serve basis. The balance of any time remaining in a session may be devoted to minor adjustments or corrections to the apparatus for items which may have developed while in transit from the factory.

One (1) Documentation - NFPA Requirements Y\_\_N\_\_  
DOCUMENTATION - NFPA REQUIREMENTS

All NFPA required documentation and certifications shall be supplied with the apparatus at the time of delivery.

One (1) General Design Requirements - S/S Custom Cab, S/S Body Y\_\_N\_\_  
GENERAL DESIGN REQUIREMENTS

Repair/Replacement parts should be readily available with proprietary parts avoided whenever possible

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

A deluxe custom cab chassis shall be provided. It shall incorporate an all steel cab for strength, durability and safety. The cab and body sheet metal shall be constructed of stainless steel.

The cab has the highest strength-to-weight ratio of any stainless steel cab design in the industry. A 3" rectangular tube steel sub frame anchors a completely enclosed, all-

stainless steel super-structure; providing a protective safety-cage that totally surrounds and protects the properly seat belted driver, officer and crew. This safety-cage is covered in heavy gauge stainless steel, making the finished product the strongest, safest cab in the industry.

The specified apparatus shall be designed to be fully operational in the local climate of the purchaser.

One (1) Gross Vehicle Weight - with Certificate at Delivery Y\_\_N\_\_  
GROSS VEHICLE WEIGHT

The manufacturer shall be responsible for proper weight distribution upon the chassis and axles.

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

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

One (1) Customer Declared Equipment Weight - 0 To 1250 LB Evenly Distributed Y\_\_N\_\_  
CUSTOMER DECLARED EQUIPMENT WEIGHT

The customer declared equipment weight shall be from 0 to 1250 pounds. This weight shall be evenly distributed.

One (1) Vehicle Performance Analysis Report Y\_\_N\_\_  
VEHICLE PERFORMANCE ANALYSIS

A performance analysis report shall be run on the vehicle, as ordered, using computer software to determine top speed, grade ability, optimum shift points and acceleration on various grades. The report shall be delivered with the completed vehicle, but shall be available within thirty (30) days of the pre-construction conference.

One (1) Apparatus Overall Height Y\_\_N\_\_  
APPARATUS OVERALL HEIGHT

The overall height of the completed apparatus **shall not exceed 138 inches**. This measurement shall be taken with the water tank empty and no hose, equipment or personnel on the apparatus. All permanently mounted equipment shall be in the stowed/travel position. NO EXCEPTION

One (1) Apparatus Overall Length Y\_\_N\_\_  
APPARATUS OVERALL LENGTH

The overall length of the completed apparatus shall **not exceed 672 inches**. This measurement shall be taken with all permanently mounted equipment in the stowed/travel position. NO EXCEPTION

One (1)

General Construction, Quality and Workmanship  
GENERAL CONSTRUCTION, QUALITY AND WORKMANSHIP

Y\_\_N\_\_

The design and construction of the apparatus shall embody standard automotive heavy vehicle engineering practices. The apparatus shall be designed, engineered and constructed with due consideration for the severe service nature of the fire service. All parts of the apparatus shall be installed in accordance with the OEM specifications and shall be strong enough to withstand the general service under full load for twenty (20) years.

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

The workmanship shall be of the highest quality in its respective field. In order to assure the quality that the purchaser demands and expects, all welding personnel that shall be utilized in the fabrication and construction of structural components of the apparatus chassis, body and aerial device shall hold a valid certificate from the AWS - American Welding Society.

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

- American Society for Testing Materials (ASTM) - A-36, Specification for Structural Steel
- Society of Automotive Engineers, Inc. (SAE) - SAE Handbook
- American Welding Society (AWS) - AWSO14.4-77 Classification and Application of Welded Joints for Machinery and Equipment
- American Society for Non-Destructive Testing (ASNT)
- ASNT Guidelines; Procedure SNT-TC-1A

The apparatus shall have symmetrical proportions and a pleasing appearance as a result of design detail and fit/finish quality. The apparatus shall be engineered with firefighter safety as the top priority. Ease of operation and ease of maintenance shall also be considered in the apparatus design, but shall not compromise safety. No special tools shall be required to access normal service or maintenance items.

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

One (1)

Drive Line Vibration Testing  
DRIVELINE VIBRATION TESTING

Y\_\_N\_\_

The apparatus shall be tested for the level of vibration on power train and drive line components such as the engine, transmission, drive shafts, axles and tires, after construction. The test shall be performed using dedicated sensing devices and software on a pre-defined test route and under various regular driving conditions, including speeds, acceleration and braking. The apparatus shall have all major components and most

features completed at the time of the test. The apparatus shall be loaded to simulate an in-service condition.

One (1) NFPA 1901 Stepping Surface Certification Y\_\_N\_\_  
STEPPING SURFACE CERTIFICATION

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

One (1) Aerial Test and Certification - UL Y\_\_N\_\_  
AERIAL TEST AND CERTIFICATION

The aerial device shall be tested by Underwriter's Laboratories (UL) at the manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests shall be provided with the delivery documentation.

One (1) Performance Requirements and Test - NFPA Y\_\_N\_\_  
PERFORMANCE REQUIREMENTS AND TEST - NFPA

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

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

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

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

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

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

One (1) Failure to Meet Test Y\_\_N\_\_  
FAILURE TO MEET TEST

In the event that the apparatus fails to meet the road test requirements of these specifications upon delivery, during the first trials, second trials may be made at the option of the bidder within 30 days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection of the apparatus. Permission from the manufacturer to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the Fire Department during the above specified period shall not constitute acceptance.

One (1) Stainless Steel 131" Full Tilt Cab - 100/250 TDA, w/o Tele W-Way Y\_\_N\_\_  
GENERAL

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

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

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

One (1) Wheelbase Y\_\_N\_\_  
WHEELBASE

**The wheelbase shall be: Tractor - 150.00 inches**

**Tractor Drive to Tiller Steering - 305.00 Inches**

**Tractor Steering to Tiller Steering - 455.00 Inches**

One (1) Seating Capacity Y\_\_N\_\_  
SEATING CAPACITY

The safe seating capacity of the cab for properly belted passengers shall be:

**Tractor - Four (4)**

One (1) Approach - Departure Angles Y\_\_N\_\_  
APPROACH - DEPARTURE ANGLES

An angle of approach and an angle of departure of at least 8 degrees shall be maintained at the front and the rear of the vehicle when it is loaded to the estimated in-service weight, as defined by NFPA 1901 2009 edition.

One (1) Gross Vehicle Weight Ratings - TDA Y\_\_N\_\_  
GROSS VEHICLE WEIGHT RATINGS

**Front Tractor Weight Rating shall be: 20,000 Lbs.**

**Rear Tractor Weight Rating shall be: 24,000 Lbs.**

**Tiller Axle Weight Rating shall be: 20,000 Lbs.**

**Gross Vehicle Weight Rating shall be: 64,000 Lbs.**

One (1) Frame - 10.25" Straight Rail, 2.124m RBM, For Less Than 180" Wheel Base Only Y\_\_N\_\_  
FRAME

The chassis frame shall be built with two steel channels with a minimum of five (5) cross members. Pump shall not be counted as a cross member. The side rails shall be of heat treated steel. Each rail shall have a section modulus of 16.4, a minimum elastic limit of 120,000 PSI and a minimum resisting bending moment of 2,124,000 inch pounds. The cross members shall be of heavy duty, fabricated, all-welded design, made out of a minimum of 50,000 psi material. The frame and cross members shall be a bolted assembly utilizing 5/8" flange head grade eight bolts and Spiralock® flange nuts. Spiralock® nuts shall be used exclusively in the frame assembly for mounting spring hangers, steering gear, engine, transmission, etc. because of their ability to maintain a constant torque tension and prevent vibration loosening. Their design shall provide for an even thread load distribution over the bolt, increased fatigue strength and life, and clamping torque. All holes made must

be used and any holes in the frame for options not required on this chassis are not acceptable.

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

One (1) Bumper - 10.25" High (NYC Style) Mitered Corners, LINE-X/Paint (**RED in Color**) Y\_\_N\_\_  
BUMPER

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

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

A black LINE-X finish shall be applied to the exterior face of the bumper. The interior face shall be painted black. A Reflective (**white**) "L-1" shall be on officers side of bumper.

One (1) Bumper Extension - 12" Y\_\_N\_\_  
12" BUMPER EXTENSION

A bumper extension shall be installed at the front of the cab. The front of the bumper shall be approximately 12" from the front face of the cab. A gravel pan made of 3/16" aluminum tread plate shall be installed between the front bumper and the cab. The bumper extension shall be designed and constructed so that the apparatus can be pulled by the extension.

One (1) Bumper Extension shall be Lifiable & Towable Y\_\_N\_\_  
LIFTABLE AND TOWABLE BUMPER EXTENSION

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

One (1) Recessed Notch in Front Bumper - LS, Full, for Q2B Y\_\_N\_\_  
RECESSED NOTCH IN FRONT BUMPER FOR LEFT SIDE Q2B SIREN

A recessed notch shall be cut into the left side of the front bumper and gravel pan for a Q2B siren. It shall be boxed in on the three vertical sides with aluminum tread plate.

One (1) Front Tow Hooks - (2) Chrome, Top of Bumper Y\_\_N\_\_  
FRONT TOW HOOKS

Two (2) chrome plated tow hooks shall be furnished and located on the top of the aluminum tread plate gravel pan just behind the bumper. They shall be securely bolted to

the bumper extension channel.

One (1) Rear Tow Eyes - (2) Cut Plate, Painted, Bolted to Frame Rail Y\_\_N\_\_  
REAR TOW EYES

Two (2) rear tow eyes, bolted to the frame rails, one (1) each side shall be provided. The eyes shall be fabricated of 1" heavy duty steel plate, with a 3" diameter opening designed so that stress will be applied to each chassis frame rail, when utilized.

One (1) Power Steering Installation Y\_\_N\_\_  
STEERING

A heavy duty 18,000 lb. capacity power steering system shall be provided. The hydraulic pump shall be engine gear driven. The steering gear "box", or fixture that the gear is mounted to, shall be fabricated in the factory of the bidder. It shall be a welded assembly constructed of 3/8" formed steel with a 3/4" face plate. Vertical gussets shall be provided between the face plate and the frame mounting plate to insure against frame flex while the vehicle is stationary.

One (1) Auxiliary Cylinder - Power Steering Y\_\_N\_\_  
AUXILIARY CYLINDER FOR POWER STEERING

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

One (1) Chassis Alignment Y\_\_N\_\_  
CHASSIS ALIGNMENT

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

The completed apparatus should be rechecked for proper alignment after a 100 mile road test has been completed at the factory.

One (1) Air System - Chassis (TDA) Y\_\_N\_\_  
AIR PIPING

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

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

Brake piping shall consist of SAE approved, DOT rated "Synflex" reinforced nylon colored tubing. Braided hoses shall provide flexibility between axle and frame connections. Brake air lines shall be color-coded. Air inlet to air brake compressor shall be from the engine intake manifold, i.e. after transition through the engine air cleaner. A stainless braided Teflon hose and/or copper tubing shall be provided from the compressor

to the air dryer.

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

Y\_\_N\_\_

Drain Valve - Cable Controlled, Wet Tank

Five (5)

WET AIR RESERVOIR DRAIN CONTROL

A cable controlled drain valve shall be provided on **all air reservoirs**. The pull cable shall be extended to the side of the truck with a loop provided at its end.

One (1)

Air Dryer - Bendix AD-9  
AIR DRYER

Y\_\_N\_\_

A Bendix AD-9 air dryer shall be installed in the air brake system. It shall be equipped with an automatic heated moisture ejector.

One (1)

Aux Air Outlet - Schrader Coupler  
AUXILIARY AIR OUTLET

Y\_\_N\_\_

There shall be a 1/4" female air outlet with Schrader air hose fitting mounted on the **left driver's step well riser with a 1/4 quarter-turn** valve. The outlet shall be connected to one of the vehicle's air reservoirs and shall provide an air supply for air tools or other uses.

One (1)

Aux Air Inlet - w/Kussmaul #091-28 Auto Eject & #091-28-AK Adapter Kit, Cab Side  
KUSSMAUL AUTO EJECT FOR AIR INLET

Y\_\_N\_\_

There shall be an auxiliary air inlet installed to maintain the chassis air pressure while the engine is not running. A Kussmaul Auto Eject model #091-28 and weather proof adapter kit model #091-28-AK for the air inlet shall be provided on the cab, behind the driver's door over the front wheel.

One (1)

Front Axle - MFS, 20.0K with Disc Brakes & 4" Spring Suspension  
FRONT AXLE

Y\_\_N\_\_

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

DISC BRAKES

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

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

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

SHOCK ABSORBERS

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

- One (1) Auxiliary Park Brake - Front Axle, Air Applied (Aerials) Y\_\_N\_\_  
AUXILIARY AIR APPLIED FRONT AXLE PARKING BRAKE

An auxiliary air applied front axle parking brake shall be supplied with a separate control switch and properly labeled indicator light in the cab. This front parking brake will only be able to be activated when the parking brake for the rear axle is set.

- One (1) Rear Axle - RS-24-160, with EX225H Disc Brakes, 24,000# Y\_\_N\_\_  
REAR AXLE

The rear axle shall be a Meritor model RS24-160 with a capacity of 24,000 pounds at the hub. The rear axle shall be provided with Meritor #EX225H air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The #EX225H air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical ratio. A visual indicator of brake wear shall also be provided.

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

**Rear axle ratio shall be: \_\_XXXXXX (Bidder to add figure)**

- One (1) Axle Application Certification Y\_\_N\_\_  
All axle applications must be certified by the axle manufacturer.

- One (1) Top Road Speed 60 MPH Y\_\_N\_\_  
ROAD SPEED

Per NFPA, the maximum top road speed shall be 60 mph at the governed engine RPM.

- One (1) Anti-Lock Brakes (ABS) - 4-Channel (Not Available on TDA) Y\_\_N\_\_  
ANTI-LOCK BRAKING SYSTEM (ABS)

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

simultaneously to provide maximum vehicle braking in a relatively straight line.

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

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

One (1) Vehicle Stability Compliance - Tilt Table Method, TDA Y\_\_N\_\_  
VEHICLE STABILITY COMPLIANCE

In compliance with NFPA 1901, current edition, the vehicle stability compliance shall be performed on a tilt table.

One (1) Automatic Traction Control w/ Deep Mud & Snow Switch Y\_\_N\_\_  
AUTOMATIC TRACTION CONTROL WITH DEEP SNOW AND MUD SWITCH

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

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

#### SKF LUBRICATION SYSTEM

The SKF automatic lubrication system shall provide automatic grease application up to 36 designated wear points on the unit, with the recommended dosages, per system interval cycle.

The auto lube system shall be powered by an electrically driven Gear Pump. The gear pump shall be top mounted to a reservoir assembly with a capacity of 2.7 liters. The pump shall operate against a back pressure of 38 BAR (550 PSI) nominal, with an output of 160 cc/min. The pump assembly shall be mounted in a suitable location to facilitate care and maintenance of the system by removal of the cover assembly for access to the refill valve connection for replenishment of the grease reservoir.

Distribution of lubricant shall be via Piston Distributors utilizing the "post lubrication principle", dispensing lubricant on the off cycle of the system or pump run time, with metering nipples bearing dosage identification which can be field changeable without disruption of other lubrication point connections.

The auto lube system shall be operated via an electronic control module with System Monitoring capabilities of the main line and operating cycle with dash mounted visual indication to the vehicle

One (1) Automatic Snow Chains – On-spot Y\_\_N\_\_  
ON-SPOT AUTOMATIC SNOW CHAINS

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

One (1) Rear Susp. - Semi-Elliptical Spring, 3"x52", Single, 24,000# Y\_\_N\_\_  
REAR SEMI-ELLIPTICAL SPRING SUSPENSION, 3" X 52", SINGLE - 24,000#

The rear suspension shall be semi-elliptical 3" x 52" constant rate type springs with a military wrapped eye. The correct material, spring length, width, thickness and number shall be provided to match the leaf spring rating with that of the gross axle weight rating of the vehicle.

Two (2) Front Tires - MI/315/80R22.5/XZA2 Energy/Hwy 10,000# (Ea) Y\_\_N\_\_  
FRONT TIRES

The two (2) front tires shall be Michelin 315/80R22.5, XZA2 Energy, load range "L", highway tread (heavy loads and high speeds for extended periods of time) with a maximum rating of 10,000 pounds at a top speed of 75 mph.

Four (4) Rear Tires - MI/12R22.5/XDN2/Neige 7,220# (Ea) Y\_\_N\_\_  
REAR TIRES

The four (4) rear tires shall be Michelin 12R22.5, XDN2, load range "H", Neige tread (all-weather premium drive tire optimized for exceptional traction and mileage) with a maximum rating of 7,220 pounds at a top speed of 75 mph.

One (1) Wheels - Aluminum Disc, Durabrite, Outer Only, on Single Rear Axle Y\_\_N\_\_  
WHEELS

Front axle and rear axle outer wheels shall be Alcoa aluminum. The aluminum wheels shall be coated with Durabrite. Inner rear axle wheels shall be steel. All wheels shall be disc type and hub piloted. Isolators are mandatory between the aluminum and the steel wheels. Chrome plated nut covers shall be furnished.

One (1) Hub Caps - (2) S/S, "Baby Moon", Front Axle Y\_\_N\_\_  
FRONT AXLE "BABY MOON" HUB CAPS

Stainless steel "Baby Moon" type hub caps shall be provided on the front axle.

One (1) Hub Caps - (2) S/S, "High Hat", Rear Axle Y\_\_N\_\_  
REAR AXLE "HIGH HAT" HUB CAPS

Stainless steel "High Hat" type hub caps shall be provided on the rear axle(s).

One (1) Tire Pressure Indicators - Accu-Pressure H.D. Safety Caps, TDA Y\_\_N\_\_  
TIRE PRESSURE INDICATORS

Accu-Pressure Heavy Duty Safety Caps shall be provided and installed: each wheel shall be equipped with a valve stem inflation pressure sensitive monitor that shall provide a visual color indication of when the tire pressure is below the manufacturers recommended level. The chrome safety cap shall show green when the tire is properly inflated and red once the tire becomes underinflated by.

One (1) Tire Balance - Equal, Front Tires Only Y\_\_N\_\_  
TIRE BALANCE

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

ENGINE

The chassis shall be powered by a 2013 emissions compliant Cummins ISX12 diesel engine, as described below:

Model	ISX12
Number of Cylinders	Six
Bore and Stroke	5.11 x 5.91 in
Displacement Liter (Cu. In.)	11.9 (729)
Rated BHP	500 @ 1800 RPM
Torque	1645 ft.lb. @ 1200 RPM
Governed RPM	2100
Oil Capacity / Type	12 gallons / SAE CJ-4
Fuel Requirement	Ultra low sulfur diesel (15 ppm max.)

Standard equipment on the engine shall include the following:

- Selective Catalytic Reduction (SCR) after treatment
- Cooled Exhaust Gas Recirculation system
- Fan – 32”, 11 blade
- Charge air cooling
- High pressure, common rail fuel system
- Fuel filter with check valve and water separator
- Fuel strainer
- Governor – electronic, interact system
- Injectors – electronically controlled full authority injection
- Lube oil cooler – integral
- Lube oil filter – full flow
- Turbocharger – variable geometry type
- Air compressor – Wabco 18.7 CFM

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

ENGINE AND CHARGED AIR COOLING SYSTEMS

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

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

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

The radiator and charger cooler shall be mounted to the chassis stub. Fabricated mounting bracket for the fans ring shall be attached to the front of the engine in a manner so that it "floats" with the engine and increases the fan's efficiency by tightening the tip clearance. This mounting design eliminates engine fan and radiator shroud contact due to engine torque movement and promotes more efficient airflow. The radiator and charger cooler shall be held in place at the bottom by two (2) large bolts equipped with anti-stress rubber biscuits. The top of the radiator shall be supported by two (2)  $\frac{3}{4}$ " tubular braces, bolted to the chassis stub. Anti-vibration rubber biscuits shall be installed at the top threaded end of the braces where they attach to the radiator.

One (1) Engine Cooling Certification Y\_\_N\_\_  
ENGINE COOLING CERTIFICATION

"EPQ" (End Product Questionnaire) certification shall be provided by the apparatus manufacturer and shall be done on a completed unit (after pump and complete body installation). Incomplete certifications (chassis only) shall not be acceptable.

One (1) Fan Clutch Y\_\_N\_\_  
FAN CLUTCH

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

One (1) Coolant Overflow Reservoir - 6 QT, MII 131/141" Full Tilt Y\_\_N\_\_  
COOLANT OVERFLOW RESERVOIR

A six (6) quart coolant overflow reservoir shall be provided. It shall be located in the engine compartment.

One (1) Silicone Hoses - Coolant/Heater Y\_\_N\_\_  
SILICONE HOSES

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

One (1) Transmission - Allison, 4000-EVS Y\_\_N\_\_  
TRANSMISSION

An Allison, Model 4000 - EVS, electronically controlled, 6 speed automatic transmission with integral fluid filter shall be provided. A transmission cooler shall be installed in the radiator bottom tank. A warning light and buzzer shall be provided on the cab dash to alert the driver should the transmission overheat.

The transmission shall include the following: an oil life monitor, a filter life monitor, and a transmission health monitor. The oil life monitor determines fluid life remaining by monitoring various operating parameters. The filter life monitor determines when fluid filter(s) need to be replaced. The transmission health monitor determines when clutch system inspection is required. The monitors send a message via a blink code to a special

prognostic light on the shift pad. Also on the shift pad shall be installed a digital, double-digit display that identifies the level of transmission oil. The display shall identify the oil level as "Ok", "Lo" or "Hi", also indicating the number of quarts lo or hi.

The transmission shall include the following emergency vehicle specifications:

Maximum gross input power:	600 hp
Maximum gross input torque:	1850 ft.lb.
Input speed range:	1700 to 2300 rpm
Direct gear lock-up:	4 <sup>th</sup> @ 1.00 to 1.00
Overdrive gear and ratio:	5 <sup>th</sup> @ 0.74 to 1.00

Gear ratios shall be as follows:

1 <sup>st</sup>	3.51 to 1
2 <sup>nd</sup>	1.91 to 1
3 <sup>rd</sup>	1.43 to 1
4 <sup>th</sup>	1.00 to 1
5 <sup>th</sup>	0.74 to 1
6 <sup>th</sup>	0.64 to 1
Rev	-4.80 to 1

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

One (1)      Transmission Fluid - Synthetic SAE Standard for 4000-EVS      Y\_\_N\_\_  
TRANSMISSION FLUID

The Allison 4000-EVS transmission shall be delivered from the factory with a synthetic SAE standard ATF.

One (1)      Transmission Programming - 6th On Mode      Y\_\_N\_\_  
TRANSMISSION PROGRAMMING

The transmission shall be programmed as a 6-speed with 6th gear (second overdrive) selected by mode button only.

One (1)      Transmission Shift Control - Allison Touch Pad      Y\_\_N\_\_  
TOUCH PAD TRANSMISSION SHIFT CONTROL

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

One (1)      Driveline - Spicer 1810      Y\_\_N\_\_  
DRIVELINE

Drivelines shall be built with heavy-duty metal tubes and utilize Spicer 1810 series or "Equal" mechanics type universal joints with "half round" end yokes. This quick disconnect strap and bolt design type end joint shall allow the driveline to be easily disassembled and dropped straight down for ease of service and maintenance. They also shall be dynamically balanced by the truck manufacturer before installation in the chassis.

A splined slip joint is to be provided in each shaft assembly.

One (1) Fuel Tank - 50 Gallon, S/S, Tractor Rear Axle Mount, with S/S Straps Y\_\_N\_\_  
FUEL SYSTEM

The vehicle shall be furnished with a 50 gallon fuel tank mounted behind the rear tractor axle and just below the frame rails using a stainless steel strap. The tank shall be constructed of stainless steel and equipped with a swash partition and vent. The fuel tank shall meet all FHWA requirements including a fill capacity of 95% of tank volume and all DOT and FMVSS regulations for rollover protection. A 2" diameter fill inlet, located on the top of the tank, shall be provided. Fuel cap shall be of brass or bronze construction, non-vented and have lead safety fuses. It shall be chained to inlet tube or to the body sheet metal to prevent loss. Braided hoses shall be provided for the fuel lines. A 1/2" NPT drain plug shall be located at the bottom of the tank. The tank shall be installed using stainless steel straps and hardware, separated from the tank by a rubber insulating strip to prevent against chaffing. The fuel tank pickup tube and sending unit shall be accessible without having to remove the tank.

One (1) Fuel Water Separator with Alarm & Heater - Racor 490 Series Y\_\_N\_\_  
FUEL WATER SEPARATOR WITH ALARM & HEATER

A Racor 490 spin-on 10 micron filter with fuel water separator with water sensor alarm and heater shall be provided.

One (1) Engine Starter - Denso, 12 Volt Y\_\_N\_\_  
ENGINE STARTER

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

One (1) Alternator - Delco, 430 Amp, Model 55SI Y\_\_N\_\_  
ALTERNATOR

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

One (1) Air Compressor - Wabco 18.7 cfm Y\_\_N\_\_  
AIR COMPRESSOR

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

One (1) Air Cleaner - Donaldson® PowerCore®, Y\_\_N\_\_  
AIR CLEANER

A Donaldson® PowerCore® dry type engine air cleaner shall be provided. It shall be installed in a location so that the filter element can be easily serviced.

One (1) Air Restrict Indicator - Information Display Center Y\_\_N\_\_  
AIR RESTRICTION INDICATOR IN INFORMATION DISPLAY CENTER

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

One (1) Exhaust - Switchback DPF/SCR, Outboard of Frame Rail Y\_\_N\_\_  
EXHAUST

A SCR chamber shall be installed in “switchback” series with the DPF chamber on the right side of the vehicle, immediately behind the cab and shall ingest urea from a remote storage tank providing a catalytic reaction with diesel exhaust particulates. The exhaust assembly shall be mounted outboard of the frame rail.

One (1) DPF Regeneration Process Y\_\_N\_\_  
DPF REGENERATION PROCESS

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

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

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

Standard practice is to inhibit any automatic regeneration when in pumping or aerial mode. There shall also be an inhibit switch placed near the driver to inhibit an automatic return when driving.

One (1) Diesel Exhaust Fluid (DEF), Y\_\_N\_\_  
DEF

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

One (1) tank full of urea solution shall be required for every 500 gallons of diesel fluid.

One (1) DEF Access- Tilt Cab and Fill Directly, Y\_\_N\_\_  
DEF ACCESS

The DEF shall be filled directly by tilting the cab.

One (1) Exhaust Heat Shielding for 2013 Emissions Engine Y\_\_N\_\_  
EXHAUST HEAT SHIELDS

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

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

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

One (1) Engine Brake - Jacobs, Cummins ISX Engine Y\_\_N\_\_  
ENGINE BRAKE

A Jacobs engine brake shall be installed with controls within easy reach of the driver.

Brake shall automatically be actuated when the accelerator pedal is released. The engine brake shall be wired in conjunction with the rear brake lights so that they are activated when the engine brake is engaged. It shall have a three position switch; "LOW", "MEDIUM" and "HIGH" along with an "OFF" and "ON" switch.

One (1) Aggressive Down Shift - Jacob's Brake Y\_\_N\_\_  
AGGRESSIVE DOWN SHIFT

An aggressive down shift shall be provided that shifts the transmission down to 2<sup>nd</sup> gear. This shall be tied to the Jacobs engine brake switch and the aggressive down shift shall only function when the Jacobs engine brake is ON. The Jacobs brake shall engage when you let off the accelerator and the aggressive down shift shall engage when the brake pedal is depressed and shall reset after the accelerator is applied.

One (1) Fast Idle - Switched on Dash Y\_\_N\_\_  
FAST IDLE SWITCH

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

One (1) Decal- Lubrication Capacity Y\_\_N\_\_  
LUBRICATION DECAL

A decal shall be installed that specifies the quantity and type of lubrication fluids used in the following chassis or apparatus components: engine, chassis transmission, pump transmission, pump primer and rear axle differential. Engine coolant type and quantity shall also be stated.

One (1) Lubrication Decal/Nameplate Shall be Installed on Driver's Door Y\_\_N\_\_  
The lubrication decal/nameplate shall be installed on the interior face of the driver's door, near the hinge and below the window controls.

One (1) Chassis - Trailer, 100 Ft, TDA Y\_\_N\_\_  
TRAILER FRAME

The trailer frame shall be of the curved gooseneck design, welded channel construction, incorporating a forward section for the turntable and rearward section for the body and tiller station. The frame is to have a 110,000 PSI yield and a minimum resistance to bending moment of 2,300,000 in lbs. per rail.

The distance from the center line of the tiller axle to the trailer frame cut off shall be 126.0"

One (1) Fifth Wheel - TDA Y\_\_N\_\_  
FIFTH WHEEL

A heavy duty fifth wheel shall be provided with a monorace bearing of a minimum of 3" x 30" in diameter. The mounting plate shall be bolted to the tractor frame rails using .75" grade 8 bolts. The longitudinal pivot shall utilize two (2) 1.75" minimum diameter 4340

heat treated steel pins mounted in double shear.

One (1) Trailer/Tiller Axle - Meritor FL941with Drum Brakes, 21.5K#, TDA 100'  
AXLE Y\_\_N\_\_

Trailer axle to be Meritor Model FL-941 with auto slacks, drum brakes and a rated capacity of 21,500 lbs. Chrome plated wheel nut covers shall be furnished.

STEERING

A steering gear pump and assist cylinder shall be provided for the trailer axle steering.

One (1) Tiller Suspension - Air, Ridewell 227, with Air Reservoir, 21.5K#, TDA  
SUSPENSION Y\_\_N\_\_

The tiller axle suspension, (up to 21,500 lb), shall be a Ridewell RAS-227 air type. Heavy duty sway and stabilizer bars as well as shock absorbers shall be provided. A 1250 cubic inch air reservoir will be provided to supply the required air for the suspension.

One (1) Tiller Brakes - with Air Reservoir  
BRAKES Y\_\_N\_\_

The trailer is to have full air type Rockwell brakes. The system is to meet or exceed current FMVSS-121 requirements.

One (1) Trailer Brake Piping - Nylon  
NYLON BRAKE PIPING Y\_\_N\_\_

Nylon brake lines shall be provided in the trailer frame.

Two (2) Tiller Tire - M/315/80R22.5/XZY3/On/Off 9,630#(Ea)  
TILLER TIRES Y\_\_N\_\_

The two (2) tiller axle tires shall be Michelin 315/80R22.5, XZY3, load range "L", on/off road tread (heavy loads and slower speeds, operating on a mixture of improved secondary and aggressive road surface) with a maximum rating of 9,630 pounds at a top speed of 65 mph.

Two (2) Wheels - Aluminum Disc, Durabrite, Hub Piloted, Tiller Axle(Ea)  
TILLER WHEELS Y\_\_N\_\_

The two (2) tiller wheels shall be Alcoa aluminum disc type and hub piloted. The wheels shall be coated with Durabrite. Chrome plated nut covers shall be furnished.

One (1) Tow Eyes (TDA)  
TOW EYES Y\_\_N\_\_

Two (2) rear tow eyes are to be provided, attached directly to the trailer frame rails.

One (1) Cab - S/S, Full Tilt, 131"  
STAINLESS STEEL FULL TILT CAB Y\_\_N\_\_

The cab shall be designed specifically for the fire service and shall provide roll cage strength and safety. The stainless steel cab shall be made in the factory of the bidder and

must utilize the bidder's top-of-the-line technology and manufacturing techniques. The entire cab shall tilt forward 45 degrees for engine access. No plastic, fiberglass, or aluminum shall be used in the construction of the cab sub-frame, floor assembly, front assembly, side assemblies, back wall assemblies or roof assembly.

### CAB DIMENSIONS

The back wall of the 131" cab shall measure 62" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96". Entrance step wells to the driver's and officer's positions shall be a minimum of 26" wide and the rear crew step wells shall be 26" wide. They shall be "spaced" from the step well walls at front, rear and side to prevent trapping of dirt and other residue. Entrance steps shall be made of expanded aluminum grating.

### CAB MOUNTING

A four point isolated mounting system shall be provided. The cab mounting system shall consist of two (2) front pivot mounts fabricated of steel and two (2) rear cab mounts that are isolated from the chassis frame by center bonded rubber isolators. Each front pivot mount shall consist of a greaseless pin and a multi-layered, self-lubricating, composite bearing. The outer layer of the bearing shall be high-durometer rubber to isolate road vibrations and shock.

### CUSTOM CAB DESIGN AND CONSTRUCTION

#### SUB-FRAME

The sub-frame shall be stainless steel plate and tube welded to 3" x 4" rectangular structural steel tubes, with the 4" stainless steel tubing used in a vertical orientation. All joints shall have continuous welds; stitch welding shall not be acceptable. The sub-frame shall be designed as a continuous structure from the front to the back of the cab. It shall be used to support the cab while tilting, join front pivots to the cab locks, and to join the cab to the chassis. Pocketing of the sub-frame shall not be acceptable. Use of the engine tunnel as part of the main sub-frame shall not be acceptable.

#### CAB FLOORS

All floor components shall be welded directly to the sub-frame. The floor shall be constructed of 50,000 psi stainless steel.

#### FRONT ASSEMBLY

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

#### SIDE WALL ASSEMBLIES AND DOORS

The safety cage on the sides shall be constructed of 1.25" stainless steel tubing. Both side

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

The front door hinge mount (aka “A” pillar) shall be a 2” x 3” tube with a .19” thick wall. The rear door hinge mount (aka “C” pillar) shall be equivalent to a 12 gauge formed channel with .19” thick tapping bar.

#### BACK WALL ASSEMBLY

The safety cage on the back wall shall be constructed of 1.25” stainless steel tubing. It shall join the roof to the floor assembly. Construction of the back wall assembly shall utilize a minimum of 12 gauge stainless steel material and the design shall provide crush protection in the event of a rollover. The back wall structure shall be uniform, regardless of the seating choices. All seat mounts and seat belt mounts shall use weld nuts to eliminate pull outs and stripped threads. The outer skins shall not be an integral structural member. One inch of insulating foam shall be located between the exterior and interior back walls.

#### ROOF ASSEMBLY

The perimeter structure of the safety cage roof assembly shall be tied by repeating 1.25” stainless steel tubing to maximize loading potential across the whole roof. The fabricated and welded roof sills and front header shall be made of 50,000 psi stainless steel material. The corner caps shall utilize spun metal technology thus retaining the metal’s strength while producing a very rigid corner joint. The side roof covering (rolled edges) shall be constructed of stainless steel formed in a quarter round. It shall form a hollow double wall, angle reinforced roof edge with an integral drip rail. There shall be 1.25” of insulating foam between the exterior roof and interior ceiling.

One (1)      Rear Cab Wall Exterior Finish - Full ATP      Y\_\_N\_\_  
ATP OVERLAY ON BACK OF CAB

An aluminum tread plate overlay shall be provided over the entire exterior rear wall of the cab.

One (1)      Cab Grille - Front, Raised Bezel Surround, Vertical Bars      Y\_\_N\_\_  
CAB GRILLE - VERTICAL BARS AND RAISED BEZEL SURROUND

The cab front opening shall be covered with a custom made polished stainless steel grille that shall be fabricated in the bidder's factory. The grille shall have formed vertical bars spaced apart on 2" centers. The upper polished stainless steel grille shall have a matching lower counterpart to further facilitate engine cooling. The two (2) stainless grilles shall be housed in a custom, raised and chrome plated bezel.

One (1)      Engine Air Inlet Grille & Ember Separator,      Y\_\_N\_\_  
ENGINE AIR INTAKE GRILLE WITH WATER/EMBER SEPARATOR

The air intake shall be concealed behind the cab grille. The water and ember separator shall set behind the cab grille on the officer’s side. This may be cleaned or replaced by tilting the cab.

- One (1) Cab Roof - S/S, Flat, Y\_\_N\_\_  
FLAT ROOF
- A flat roof shall be provided with an interior floor to ceiling height of 57".
- One (1) Exterior Cab Roof Finish - Paint w/ ATP Strips Y\_\_N\_\_  
PAINTED CAB ROOF WITH ATP STRIPS
- The exterior surface of the cab roof shall be painted in compliance with the cab paint specifications detailed elsewhere in this specification document. A strip of embossed, skid resistant aluminum tread plate shall be provided on the cab roof, parallel to and along each side of the aerial device.
- One (1) Doors - Barrier Style, Y\_\_N\_\_  
CAB DOOR CONSTRUCTION - BARRIER CLEARING
- The cab doors shall be barrier clearing and fabricated from stainless steel. The cab doors shall be 34.75" wide. The interior and exterior door handles to be flush mounted paddle style with a keyed lock incorporated in the exterior handle and lever control lock incorporated in the interior handle. Six (6) inch wide strap style door checks shall be provided. The door check's straps shall have a tensile strength of 120 lbs/in of width. The door's latch locking mechanism shall make it impossible to lock oneself out of the cab unless locked with the supplied key. Doors shall be hung on stainless steel full length hinges attached to cab and door with .25" bolts. The hinges for each door shall be of one-piece 304-2B stainless steel construction with ¼ stainless steel pins and 0.090 gauge leaves with 2" joints and a 3" width opening. Doors shall meet Federal Motor Vehicle Safety Standard #206. The doors shall be designed so as to allow the windows to roll completely down.
- One (1) **Cab Tilt Mechanism - S/S, Full Tilt** Y\_\_N\_\_  
CAB TILT
- The cab shall tilt a minimum of 45 degrees for normal servicing of the engine and other equipment. The tilt cab locking system shall be a two-point type that locks automatically when the cab is lowered into its nested position. The cab tilt package is custom designed for safety and ease of vehicle maintenance. The hydraulic tilting system consists of two (2) heavy-duty single acting cylinders equipped with velocity fuses at the cylinder base in case of any failure in the operating mode. The power supply is a high efficiency electric over hydraulic system with an integral mechanical override in case of battery failure. All components and parts are designed for installation with a minimum of 3 to 1 safety factor based on current S.A.E. standards.
- In addition to the velocity fuses, a secondary safety system shall be provided to hold cab in the fully raised position in the event of a failure in the primary lift mechanism. It shall consist of a metal channel device, which automatically drops over the extended rod of the left side hydraulic lift cylinder thereby preventing its retraction. The safety channel can only be released through an overt action made by the operator such as pulling a lever or cable. Automatic release of the safety system shall not be acceptable.

The cab tilt system shall be remotely controlled utilizing a twelve foot cable with a hand held push button device which is to plug into a receptacle in the bumper area on the left-hand side of the cab. The receptacle shall have a spring-loaded weatherproof cover.

One (1) Cab Steps - Intermediate in Cab Step Wells, Partial, Y\_\_N\_\_  
INTERMEDIATE CAB STEPS

Four (4) stationary steps shall be provided, one at each cab door. The steps shall be approximately 12.0" long, have a 9.0" radius, and be located to the front of each cab step well. The steps shall be constructed of aluminum grating.

One (1) Doors - (2) Cab, Side Access, 25" High, Y\_\_N\_\_  
CAB SIDE ACCESS DOOR

Two (2) stainless steel cab side access doors shall be provided on the cab, one each side between the front doors and front crew cab windows. Door openings shall be approximately 13.00" wide x 25.00" high. "D" handle type latches shall be provided on the lower rearward part of the door. The doors shall be vertically hinged with a chain type stop.

**Doors shall be hinged at the front.**

One (1) Sill Protectors - (2) Cab Side Access Door, Brushed S/S Y\_\_N\_\_  
CAB SIDE ACCESS DOOR SILL PROTECTORS

Brushed stainless steel sill protectors, approximately .50" wide, shall be provided on the cab side access door sills to protect the painted finish.

One (1) Front Grille Script Nameplate - Mirror Finish, for Grille w/Raised Bezel Surround Y\_\_N\_\_  
FRONT GRILLE SCRIPT NAMEPLATE

A 19.43" long nameplate with manufactures name, fabricated from AISI 304 stainless steel, with mirror finish, shall be located on the lower front engine cooling intake grille of the cab.

**One (1) 12 inch stainless steel number shall be applied to the front grille of the apparatus. The numbers shall have white reflective applied.**

**The number shall be '1'.**

One (1) Inner Liners - Front, Aluminum Y\_\_N\_\_  
FRONT ALUMINUM INNER LINERS

Semi-circular inner liners shall be provided in each front wheel housing. They shall be constructed of aluminum and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The outside edge of the inner liner shall be bolted along its entire length. The bottom edge of liner shall not have a formed reinforcement flange to avoid trapping dirt and debris.

One (1) Fenderettes - Front, S/S Y\_\_N\_\_  
FRONT FENDERETTE

Polished stainless steel fenderettes shall be installed in the front wheel openings. They shall be sufficiently wide to completely cover the outside rear tire and reduce wheel splash

along the sides of the cab. They shall be installed with 1/4" hex head bolts (self-tapping sheet metal screws are not acceptable) and have a full width rubber welt placed between the fenderette and body wheel well opening flange. Outside edge of welting shall form a "V" bead between fender and cab side face to prevent moisture from entering. Inside edge shall also have a small raised bead. Outside edge of fenderette, at the wheel opening shall be rolled inward to eliminate a sharp edge and avoid injury when cleaning apparatus.

One (1) Mud Flaps - Front and Rear, Rubber Y\_\_N\_\_  
FRONT AND REAR MUD FLAPS

Heavy duty mud flaps with manufacturer's "script and logo" shall be provided at the rear of each front wheel and at the rear of the rear dual wheels. Front flaps shall be 15" wide and rear flaps shall be 24" wide. Mud flaps shall be made of 0.38" heavy duty rubber material to prevent "sailing".

One (1) Mud Flaps -Tiller Wheels, Rubber Y\_\_N\_\_  
TILLER WHEELS MUD FLAPS

Heavy duty rear mud flaps with the manufacturer's "script logo" placed on the rear face shall be provided and installed to the rear of the tiller wheels. Flaps shall be 24" wide and be made of 0.38" heavy duty rubber material to prevent "sailing".

One (1) Mirrors - (2) Rosco Accustyle, Heated/Remote w/Convex, Chrome Finish Y\_\_N\_\_  
MIRRORS

Two (2) Rosco Accustyle heated mirrors with remote shall be installed on the cab doors, one on each side of the cab. The flat upper mirror shall measure 7" x 14" and the lower convex section shall measure 6.5" x 6". The mirrors shall have a chrome finish.

A bus type mirror shall be mounted on officer side cab roof, not extending beyond bumper.

One (1) Windshield - Tinted Y\_\_N\_\_  
WINDSHIELD

The windshield shall be of tinted automotive laminated safety plate glass with a curved two-piece design. The windshield shall have approximately 2900 square inches of visual area. Right and left hand windshield glass shall be symmetrical and interchangeable from side to side to minimize spare parts stock and expense. Windshield shall be installed and held in place by an extruded rubber molding with a bright finish, decorative, locking bead. Cab shall be finish painted prior to windshield glass being installed.

One (1) Windshield Wipers & Washers, Y\_\_N\_\_  
WINDSHIELD WIPERS AND WASHERS

One (1) wet arm operated windshield wiper shall be provided for each plate of windshield glass for accessibility and optimum windshield wiping surface areas. Wipers shall be two speed type with intermittent wiping feature. One (1) control switch shall be provided and located on the self-canceling directional switch for both wiper arms. The switch shall combine the on/off (automatic park position), two speed, intermittent and washer functions in one control. The turning switch shall activate the wipers and control speed, and pushing it shall operate the washers.

One (1) Windshield Washer Fluid Reservoir - 4 QT, Y\_\_N\_\_  
WINDSHIELD WASHER RESERVOIR

A four (4) quart windshield washer fluid reservoir shall be provided. It shall be accessed in the driver's step well with a remote fill. A visual inspection shall be possible without tilting the cab (NO EXCEPTIONS).

One (1)

Door Glass - Manual, Tinted,  
DOOR WINDOWS

Y\_\_N\_\_

A retractable window with automotive type tempered safety glass shall be provided in all four (4) cab doors. All glass shall be tinted. Glass shall slide in stainless steel side channels with cloth/fiber liners. Rubberized fiber seals shall be located at the bottom of the window opening to prevent water and debris from entering the interior of the door when the glass is up (or down). A seal shall be placed on both sides (interior and exterior) of the glass. The front door glass shall be 23.75" high x 25.75" wide upper and 27.50" wide lower. The rear door glass shall be 23.75" high x 30" wide. The door window openings shall be trimmed on the exterior side with a smooth, black, poly vinyl chloride (PVC) molding

Window regulator shall be manufactured by the Muncy Corporation and shall be the enclosed, sliding flexible shaft, gear type for ease of operation and reliability. The shaft shall enter a vinyl plastic protective sheath whenever it is exposed.

**Electric controlled windows in drivers and officer window only.**

**Manual window crank for both crew cab doors.** Effort shall be the same over the entire raising or lowering process. Crank arm shall be installed on a 3/8" square shaft (splined shaft will not be acceptable). Regulator shall not require any periodic maintenance over its lifetime. Sector gear/lever action or sprocket/moving arm type regulator mechanisms will not be acceptable.

One (1)

Glass - Side Crew Cab, Fixed, Tinted,  
CREW CAB SIDE GLASS

Y\_\_N\_\_

There shall be a side window on each side of the cab between the doors. They shall be tinted and be manufactured of automotive tempered safety glass. Each window shall be 23" high x 17" wide to provide maximum vision. They shall be installed and held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. Cab shall be finish painted prior to window glass being installed.

One (1)

Windows - (2) Rear of Cab 10.50"h x 14.94"w (Level & 10"RR),  
REAR CAB WINDOWS

Y\_\_N\_\_

There shall be two (2) fixed windows placed in the rear face of the cab. They shall be located one each side at the extreme outer corners. Windows shall be tinted and be manufactured of automotive tempered safety glass. Each window shall be a minimum of 15 "high x 14.94" wide to provide best possible vision to the rear of the body.

These windows shall also be held in place by an extruded rubber molding with a chrome plated, decorative, locking bead.

One (1)

Cab Trim - Exterior Molding  
CAB TRIM

Y\_\_N\_\_

Decorative molding is to be provided across the front and along both sides of the cab just below the windshield level. The molding shall be the automotive adhesive type made of poly vinyl chloride (PVC). It shall be 5/8" wide with chrome plated outer edges and a

5/16" textured black center strip.

One (1) Cab Door Hinges - Polished Finish Y\_\_N\_\_  
CAB DOOR HINGES

The following exterior cab door hinges shall be polished: passenger front left side, passenger rear left side, passenger front right side, passenger rear right side and any cab side access doors present.

One (1) Cab Handrails & Grab Handles - Aluminum, Knurled, Y\_\_N\_\_  
CAB HANDRAILS AND GRAB HANDLES

Handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

Handrails and handles shall be installed as follows:

Four (4) 24" handrails shall be installed on the side of the cab, one just to the rear of each cab door.

Four (4) 6" chrome grab handles shall be provided, one on the inside of each cab door:

Two (2) 12" rubber covered grab handles shall be provided, one on the driver's side and officer's side front A-pillar, above the door hinge, to assist in entry to the cab.

Two (2) 12" rubber covered grab handles shall be provided, one on each rear crew door hinged-pillar, on the hinged side of the door, to assist in entry to the cab.

One (1) Crash Test Report - Chassis and Cab Y\_\_N\_\_  
CRASH TEST

The cab shall be certified for the following tests:

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

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

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

Performance Measure:

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

One (1) Helmet Holder - Body Y\_\_N\_\_  
HELMET HOLDER - BODY

The helmets shall be stored in the body in accordance with NFPA 1901 current regulations:

NFPA 14.1.8.4.1 A location for helmet storage shall be provided.

NFPA 14.1.8.4.2 If helmets are to be stored in the driving or crew compartment, the helmets shall be secured in compliance with 14.1.11.2.

One (1)      Helmet Caution Labels (for 4 Door Cab and Tiller Cab)      Y\_\_N\_\_  
CAUTION LABELS

Caution labels shall be posted in the main cab and the tiller cab so that they shall be visible from each seat position. The labels shall read: "Do Not Wear Helmets While Seated".

One (1)      Headliner - Padded, Acoustical      Y\_\_N\_\_  
HEADLINER

The cab shall be provided with a removable headliner for ease of servicing the electrical wiring placed in the cab roof. The headliner shall consist of 3 layers of material. Next to the roof shall be a layer of acoustical insulation made of polyester and polypropylene fibers. The next layer is 1/4" thick Luann. Finally, there is a 1/4" thick layer of foam/perforated acoustical vinyl.

The headliner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

One (1)      Back Liner - ATP      Y\_\_N\_\_  
BACK LINER

The cab shall be provided with an aluminum tread plate removable back liner. The back liner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

One (1)      Engine Enclosure - Black LINE-X,      Y\_\_N\_\_  
ENGINE ENCLOSURE

The engine enclosure structure shall have a 1-1/4" thick inner lining, on the engine side, comprised of aluminized foil and foam/barrier composite for heat insulation. The tunnel cover shall have 1/2" decoupled foam lower and 1" decoupled foam upper covering, on the cab interior side, for noise insulation. The top forward portion of the hood shall have a full-width riser with a sloped face for the installation of the switch panel. The sloped panels shall be used for vehicle accessory controls. A minimum of 1" shall be provided between the right edge of the accelerator pedal and the side of the engine hood. A removable cover over the engine enclosure and insulation shall be coated with black LINE-X to act as an insulator for sound and engine temperature, as well as to provide an easy-to-clean work surface.

In order to optimize in-cab vision and seating space for the driver, officer and crew members while properly seated and belted in turn-out gear, the maximum overall dimensions of the engine enclosure shall not exceed:

- 26.25" from floor to top of engine tunnel between driver and officer
- 26.25" from floor to top of engine tunnel at front center dash panel
- 31.25" from floor to top of driver and officer dash panels

ACCESSORY MOUNTING STRUCTURE

The top portion of the engine enclosure shall have a 1/8" thick aluminum channel frame located between the engine tunnel structure and the cover to support the cover and facilitate mounting of accessories and equipment.

ENGINE COMPARTMENT ACCESS DOOR

An access door shall be provided at the rear of the engine enclosure for routine engine fluid checks. The access door shall be insulated from engine heat with aluminized foil/foam/barrier composite and sealed to prevent exhaust fumes from entering the crew cab.

One (1)      Steering Wheel - Tilt/Telescoping      Y\_\_N\_\_  
18" STEERING WHEEL WITH TILT/TELESCOPE

A padded 18" steering wheel with center horn ring shall be provided. The upper steering column shall be of the tilt and telescopic type. A self-canceling directional switch with wiper control and headlight dimmer control shall be mounted on the steering column with an ICC four way flash switch. The self-canceling directional switch shall be easily removable and replaceable without removing the steering wheel or column assembly. The junction of the shaft and the cab floor shall be sealed to prevent air exchange between the cab interior and exterior.

One (1)      Cab Dash Finish - Black LINE-X      Y\_\_N\_\_  
BLACK LINE-X FOR CAB DASH

The cab dash shall be sprayed with black LINE-X having a high resistance to abrasion and tearing. A vinyl cloth glued or laminated in some manner to a metal backing surface shall not be acceptable.

The LINE-X shall absorb impact without surface damage. The LINE-X shall be resistant to gasoline, diesel fuel, paints, bleaches, organic solvents and other cleaning agents and chemicals. It shall include sound dampening and vibration elimination properties.

The LINE-X shall be solvent free and be environmentally safe to apply with no VOC or CFC hazards. Its surface shall have a non-glare, granular texture and be easily cleaned with common cleansing compounds.

One (1)      Overhead Dash,      Y\_\_N\_\_  
OVERHEAD DASH

An overhead drop down dash shall be provided with a full length piano hinge and four (4) 1/4 turn latches. This dash shall incorporate areas designed to hold emergency switching and selected options such as control heads and indicators that shall be accessible to the driver and officer.

One (1)      Overhead Dash Open Angle Limiting Strap,      Y\_\_N\_\_  
LIMITING STRAP

A strap shall be provided to limit the extent of opening range for the overhead power distribution area (overhead dash) access. This 2" wide, retention strap shall prevent the contact between the upper, overhead, power distribution access housing and the lower, center, dash housing. An approximate clearance of 3 inches shall be maintained and

retained by the strap. The strap shall be fastened by footman loops between the cab roof structure and hinged upper power distribution housing.

One (1) Officer's Dash - Y\_\_N\_\_  
OFFICER'S DASH

The standard (no notch) configuration of the officer's dash shall be provided.

One (1) Cab Floor - Entire Cab, Y\_\_N\_\_  
ENTIRE CAB FLOOR

The entire cab floor shall be covered with a black mat that functions as a sound barrier. The mat shall have a pebble textured heavy-duty wear surface and be laminated to a foam underlay. The mat shall be composed of a vinyl-nitrile blend, which is the base material used in IV tubes and blood bags; it is not affected by blood or other body fluids.

One (1) Sun Visors - (2) Vinyl, Padded Y\_\_N\_\_  
SUN VISORS

Two (2) approximately 8" x 28" padded sun visors shall be provided, one on the driver's side and one on the officer's side. Visor shall be supported at both ends to prevent drooping.

One (1) Sign - Vehicle Dimension & Weight Y\_\_N\_\_  
VEHICLE DIMENSION SIGN

A sign shall be provided in the front cab area indicating the height of the completed apparatus in feet and inches, length of the completed apparatus in feet and inches, and the gross vehicle weight rating (GVWR) in tons.

One (1) Cable Raceway - Y\_\_N\_\_  
CABLE RACEWAY

A cable raceway, 1.75" x 5.75", shall be installed underneath the officer's floor. It shall run between the officer's kick plate and the seat riser.

One (1) Inner Cab Door Panels - Black LINE-X (4) Y\_\_N\_\_  
INNER DOOR PANELS - BLACK LINE-X (4)

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

Four (4) Reflective Stop Sign - Inner Cab Door Panel, IPOS (Ea) Y\_\_N\_\_  
STOP SIGN(S)

A reflective stop sign shall be provided on the interior lower portion of {4} cab door(s) in place of the required NFPA reflective chevron.

**Stop signs shall be located on:**

**All cab doors (INSIDE)**

**Reflective chevron striping shall be applied around stop sign**

One (1) Seat - Driver's, Bostrom, Sierra, Air-100, Reclining (NA w RollTek) Y\_\_N\_\_  
DRIVER'S SEAT

The driver's seat shall be an H.O. Bostrom Sierra Air-100 reclining high back seat with air suspension. This seat shall have 5" horizontal adjustment.

One (1)      Seat - Officer's, Bostrom, Tanker 450, SCBA      Y\_\_N\_\_  
OFFICER'S SEAT

An H.O. Bostrom Tanker 450 SCBA seat shall be provided for the officer. This seat shall have 5" horizontal adjustment.

One (1)      Seat Riser - Officer, 10.5" High, Short Depth,      Y\_\_N\_\_  
The officer's seat shall be held at NFPA regulated height by a 3CR12 stainless steel frame that measures approximately 15.5" wide x 10.5" high x 17" deep, front to back at the top and 8.5" deep at the bottom.

One (1)      Seat Riser/Compt - Driver, 4" High, Not Available with RollTek,      Y\_\_N\_\_  
The driver's seat shall be held at NFPA regulated height by a 3CR12 stainless steel frame which creates an enclosed compartment. The compartment measures approximately 15.5" wide x 4" high x 17.5" deep, front to back at the top and 13.5" deep front to back at the bottom. Access to this compartment shall be through a vertically hinged door.

**The compartment shall have a front opening door, 13.5" wide x 2.5" high.**

Two (2)      SCBA Bracket - Zico #ULLH with Straps (Ea)      Y\_\_N\_\_  
**Two (2) NFPA compliant Zico Model ULLH universal SCBA bracket with straps shall be installed one (1) each side in the rear wall of the crew cab, just inside the cab access doors. The bottle brackets will be installed on special mounts which will angle the brackets to the outside for each of access from the ground.**

One (1)      SCBA Bracket - SecureAll™, Bostrom Seats Only (Ea)      Y\_\_N\_\_  
One (1) NFPA compliant H. O. Bostrom SecureAll™ universal SCBA bracket shall be installed in the seat(s).

Two (2)      SCBA Bracket - SecureAll™, Bostrom Seats Only (Ea)      Y\_\_N\_\_  
Two (2) NFPA compliant H. O. Bostrom SecureAll™ universal SCBA bracket shall be installed in the seat(s).

One (1)      Seat - (2) Outboard, Rear Facing, Bostrom, Tanker 450, SCBA      Y\_\_N\_\_  
REAR SEATING

The rear crew cab section shall contain two (2) outboard rear facing H. O. Bostrom Tanker 450 SCBA passenger seats. The seats shall be installed one (1) each side at the rear of the engine enclosure. The seating area shall allow maximum room for fire fighters in full turn out gear.

One (1)      Seat Belt - Driver's, 3 Point, Fixed,      Y\_\_N\_\_  
SEAT BELT

The driver's seat shall have a 3-point fixed D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

- One (1)      Seat Belt - Officer's, 3 Point, Fixed,      Y\_\_\_N\_\_\_  
SEAT BELT
- The officer's seat shall have a 3-point fixed D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.
- Two (2)      Seat Belts - Outboard, Rear Facing, 3 Point, Fixed, (Ea)      Y\_\_\_N\_\_\_  
SEAT BELTS
- The two (2) outboard, rear facing seat(s) shall have a 3-point fixed D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.
- One (1)      Upholstery - Seat, Bostrom, Durawear™, Black (Ea)      Y\_\_\_N\_\_\_  
SEAT UPHOLSTERY
- One (1) cab seats shall be upholstered in black H.O. Bostrom Durawear™ waterproof cloth fabric.
- One (1)      Interior Decor - Gray (Items without LINE-X Finish)      Y\_\_\_N\_\_\_  
INTERIOR DÉCOR
- The following components shall be gray in color:  
Headliner  
Head bumpers over crew doors  
Back liner, if using padded acoustical material  
Vinyl visors, if selecting vinyl
- The following components shall always be black in color:  
Floor matting and floor mat edging  
Headliner trim  
Back liner trim  
Crew heater, complete assembly  
Electrical panels  
Plastic snap plugs for wire access holes  
Door seals  
Seat risers  
Under seat compartments  
Seat belt retractor cover.  
Rubber covered grab handles  
Map Desk, if present
- One (1)      Interior LINE-X Decor - Dark Gray      Y\_\_\_N\_\_\_  
INTERIOR LINE-X DECOR
- The following items, with LINE-X finish, shall be dark gray in color:  
Engine cover and center dash, including engine access door and electrical access door  
Driver and officer dashes  
Overhead dash  
Upper interior door panels (Void if selecting brushed S/S)

Lower door panels (Void if selecting brushed S/S or ATP)  
All interior compartment exteriors, if selecting (large storage compartment and side access compartments)

A map box shall always have a black LINE-X finish.

One (1) Sign - Seating Capacity Y\_\_N\_\_  
CAPACITY SIGN

A sign visible to the driver, that states the number of personnel the vehicle is designed to carry, shall be provided.

Two (2) Cab Compt- Fwd Facing, Outbd, 1 RU Door, 18wx14dx51h O.D. (Ea) Y\_\_N\_\_  
STORAGE COMPARTMENTS

Two (2) storage compartments shall be provided on the rear wall of the cab. The compartments shall have a "sweep out" design. Each shall have a removable, false, back wall for electrical routings. There shall be a ROM roll-up door with tall bottom rail centered on the front of each compartment. The compartments shall be constructed of 1/8" smooth aluminum. The exteriors shall have a LINE-X finish. The overall outside dimensions of each compartment shall be 18" wide x 14" deep x 51" high. It is understood that the usable interior height of the compartment shall be diminished by the height of the roll of the door. Due to the space taken up by the false wall and the inside face of the door the usable interior depth of the compartment shall be 11.125".

**Compartments shall be located one (1) each side on the center rear wall of the crew cab. The roll-up doors to be positioned on the outboard side of each compartment.**

Four (4) Shelf - Adjustable, 1/8" Aluminum with DA'd Finish (Ea) Y\_\_N\_\_  
ADJUSTABLE SHELF OR SHELVES

Four (4) adjustable shelf or shelves shall be provided in the cab compartment. Each shelf shall be made from 1/8" aluminum sheet metal and have welded corners and a DA'd finish on the outside edge of the shelf. It shall be supported by four (4) stainless steel angles bolted to "Alumastrut" tracks.

Two (2) Keyed Lock - ROM Roll-up Cab Compartment Door (Ea) Y\_\_N\_\_  
LOCKING CAB COMPARTMENT DOORS

Two (2) roll-up door(s) shall be equipped with a model 1250 cam style lock. The locking mechanism shall consist of 2 locking rods that shall slide into pre-drilled holes in each of the door tracks.

One (1) Heater/Defroster - Forward Cab, 30,000 BTU, Y\_\_N\_\_  
HEATER/DEFROSTER-FORWARD CAB

A front cab heater/defroster unit shall be provided. The unit shall have a heating capacity of 30,000 BTU and combined 520 CFM variable speed blower assembly. The unit shall be located on top of the engine tunnel and shall be centered on the windshield. Defroster outlets shall be located at the bottom of the windshield and shall direct air flow from the unit up on to the windshields. Vents shall be located in the drivers and officers dashes and kick plates.

One (1) Air Conditioning Condenser Cover - ATP, Addition, Y\_\_N\_\_  
CONDENSER COVER

The air conditioning condenser assembly shall have an additional cover and / or covers to protect the Freon hoses, dryer, valves, switches and / or solenoids above the cab roof and connected to the condenser body.

The main condenser body shall have one fabricated cover with openings for, and above, the condenser fans. The main condenser body cover shall be approximately 7.5" high x 46.5" long x 26.25" wide and fabricated from 1/8" aluminum tread plate.

Additional covers, formed from 1/8" aluminum tread plate, shall be provided for hose and harness routing above the cab roof, as necessary.

Note: Condenser location and orientation is dependent on other influential options.

One (1) Manual Coolant Shutoff Valve - Forward Cab HVAC Inflow (Inlet), Y\_\_N\_\_  
MANUAL COOLANT SHUTOFF VALVE - INLET

The forward cab heater inlet flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted behind the engine for auxiliary engine coolant flow control. The valve shall be 1/4 turn style with label for ease of identification.

One (1) Manual Shutoff Valve - Forward Cab HVAC Outflow (Return), Y\_\_N\_\_  
MANUAL COOLANT SHUTOFF VALVE – RETURN

The forward cab heater return flow shall be interrupted by one (1) manual engine coolant shutoff valve, mounted on the lower radiator tube, for auxiliary engine coolant flow control. The valve shall be 1/4 turn style with label for ease of identification.

One (1) Air Conditioner - 79,000 BTU Total, Y\_\_N\_\_  
AIR CONDITIONING SYSTEM

The cab shall be equipped with an air conditioning system that shall include two (2) ceiling mounted evaporators. The air conditioning system shall have a combined cooling capacity of 79,000 BTU and variable speed blower assemblies for a combined 1100 CFM. The main controls for the unit shall be located in the dash. The evaporators shall have air diffusers to allow for multi-directional airflow. Each diffuser shall be adjustable up and down and side-to-side for individual preference. Each evaporator shall have its own sump style drain system for removal of condensation. The sump shall be integrated into the ABS evaporator cover.

The evaporators shall be compliant with all EPA regulations and use R-134A Refrigerant. All hoses used in the air conditioning system shall be "barrier" type construction for containment of the refrigerant.

The condenser assembly shall be a stacked type, low profile, dual fan compact design with dryer and pressure switch included. The condenser assembly shall include a white powder coated cover over the stacked condenser coils. The condenser shall be located on the cab roof.

The air conditioning system shall exceed the industry norm by cooling the cab from the ambient temperature of 100 degrees Fahrenheit at 50% relative humidity to an average cab temperature of 75 degrees Fahrenheit in 30 minutes.

Two (2) Auxiliary Fan on Cab Dash (Ea) Y\_\_N\_\_  
AUXILIARY FANS

Two (2) adjustable 7.5" auxiliary fans shall be provided on the cab dash, one (1) each side of the center windshield post with a two (2) speed control switch on the mounting pedestal.

One (1) HVAC Controls - Forward Cab, Y\_\_N\_\_  
HVAC CONTROLS - FORWARD CAB

HVAC controls shall feature rotary switches, function labeling, backlighting, and have colored indicators and shall be located in the center dash area between the driver and officer.

One (1) Map Box - (6) 30 Degree Angle Slots w/ Black LINE-X Finish Y\_\_N\_\_  
MAP BOX

A map box shall be provided between the driver and officer. It shall be installed on the top of the engine hood. Box shall have six (6) slots spaced on 3.00 inch horizontal centers. Each slot shall be 14.00 inches wide and 8.00 inches deep. They shall slant at a 30 degree angle towards the rear of the truck.

Box shall be constructed of .125 inch thick smooth 5052 aluminum sheet metal with welded assembly. It shall be covered with black LINE-X.

Two (2) 12V Power Point - for Cab Compartment (Ea) Y\_\_N\_\_  
12 VOLT RECEPTACLE(S) IN CAB COMPARTMENT

Two (2) 12 volt 15 amp power receptacle(s) shall be provided in the upper right corner of the rear wall of the cab interior storage compartment. The receptacle shall be wired battery direct.

One (1) Cab Side Access Door Light - ROM LED, (1) Strip Light Per Door Y\_\_N\_\_  
COMPARTMENT LIGHTS - LED

The cab side access door shall have a ROM LED lighting strip installed. The full height lighting strip shall be mounted vertically at the hinged side of the cab door. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door jam, shall be used to activate light.

Two (2) Cab Compartment Light - ROM LED, (1) Strip Light Y\_\_N\_\_  
COMPARTMENT LIGHTS - LED

The cab interior storage compartment shall have a ROM LED lighting strip installed. The full height lighting strip shall be mounted vertically at the right side of the cab compartment door (facing the compartment door). The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door jam, shall be used to activate light.

Two (2) Receptacle - 120V, for Cab Compartment, Shoreline Powered (Ea) Y\_\_N\_\_  
120 VOLT SHORELINE POWERED RECEPTACLES IN CAB COMPARTMENT

Two (2) 120-volt, 20 amp, 3-wire receptacles shall be provided and located in the upper

right corner of the backplate of each cab interior storage compartment. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

**NEMA: 5-20R (20 Amp) Non-twist-lock duplex receptacle.**

Two (2) Finish - Cab Compartment Interior, Mill Finish (Each Compt.) Y\_\_N\_\_  
FINISH – CAB COMPARTMENT INTERIOR(S)

Two (2) cab compartment interior(s) shall have no finish applied.

One (1) Warranty - Meritor Front Axle, 2 Yr, P&L Y\_\_N\_\_  
WARRANTY

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

One (1) Warranty - Meritor Disc Brakes, 3 Yr, P&L Y\_\_N\_\_  
WARRANTY

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

One (1) Warranty - Meritor Disc Brakes, 3 Yr, P&L Y\_\_N\_\_  
WARRANTY

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

One (1) Warranty - Meritor Rear Axle, 2 Yr, P&L Y\_\_N\_\_  
WARRANTY

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

One (1) Warranty - Meritor Anti-Lock Braking System, (ABS), 3 Years/300,000 Miles Y\_\_N\_\_  
WARRANTY

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

One (1) Warranty - Cummins ISX12 Engine, 5 Year/100,000 Mile Y\_\_N\_\_  
WARRANTY

Cummins provides a 5 year or 100,000 mile warranty on the ISX12 engine.

One (1) Warranty - Allison Transmission, 5 Yr, P & L Y\_\_N\_\_  
WARRANTY

Allison provides a 5 year warranty on the EVS transmissions.

One (1) Electrical Wiring - 12V General Y\_\_N\_\_  
GENERAL 12-VOLT ELECTRICAL WIRING REQUIREMENTS  
12-VOLT ELECTRICAL SYSTEM

The apparatus shall be equipped with a heavy-duty 12-volt electrical system. All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern

automotive practices. All electrical wiring and components installed in the apparatus shall be suitable for use in severe duty emergency vehicle applications.

### GENERAL WIRING AND WIRE HARNESS CONSTRUCTION

Unless otherwise specified by the component supplier, all insulated wire and cable shall conform to SAE J1127 *Low Voltage Battery Cable* type SGX or STX, or SAE J1128 *Low Voltage Primary Cable* type SXL, GXL, or TXL.

Circuit feeder wires shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected.

Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application.

The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures.

The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C) except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

### CIRCUIT IDENTIFICATION

All wiring shall be uniquely identified by a circuit number and color coding. The identification shall be referenced on a wiring diagram. Wires less than 8 AWG shall be permanently identified at least every 2.0 inches (50.8 mm) by a circuit and function code. Cables equal to or larger than 8 AWG and wires included in jacketed cables shall be permanently identified by circuit number at all terminations.

### WIRING CONNECTIONS

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. Secondary locks shall be utilized on all connectors that are secondary lock capable.

Exterior exposed wire connectors shall be environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Seal plugs shall be installed in all unused sealed connector cavities.

All ungrounded electrical terminals shall have covers or be in enclosures to protect against corrosion, excessive heat, excessive vibration, physical damage, liquid contaminants, dust, and other environmental factors.

Wiring splices shall be crimp-type, molded, or sonic weld type. Adhesive lined heat shrink tubing shall be used to seal and insulate splice joints.

### WIRE AND CABLE ROUTING

Wiring routed through holes in sheet metal or castings shall have edges protected by an

appropriately sized grommet.

Wiring shall be routed to avoid metal edges, screws, trim fasteners and abrasive surfaces. When such routings are not possible, protective devices (shields, caps, etc.) shall be used to protect the wires. When wires must cross a metal edge the edge shall be covered with a protective shield.

Wiring shall be routed to provide at least 3 inches (76.2 mm) clearance to moving parts, unless positively fastened or protected by a conduit.

Wire routings should avoid areas where temperatures exceed 180° F (82.2° C) and a minimum clearance of 6 inches (152.4 mm) shall be maintained from exhaust system components. Where compliance with this requirement is not possible, high temperature insulation and heat shields shall be utilized.

When wiring is routed between two members where relative motion can occur the wiring shall be secured to each member, with enough wire slack to allow flexing without damage to the wires.

Wiring to all circuit components (switches, relays, etc.) in exposed locations shall provide a drip loop to prevent moisture from being conducted into the device via the wire connection.

Routing wires into areas exposed to wheel wash shall be avoided if possible. When such routings cannot be avoided, adequate clipping or protective shields shall protect the wires from stone and ice damage.

Wiring shall be secured in its intended location with appropriately sized bolt-on clips and nylon wire ties.

Electrical components designed to be removed for maintenance shall include a sufficient length of wire to allow the component to be pulled away from the mounting area for inspection and service work.

Bulkhead type connectors or sealed fittings shall be used to prevent the entry of liquid contaminants into weather tight enclosures.

### SPARE WIRES

Wiring harnesses from/to major power and signal distribution areas of the apparatus shall include spare wires for future expansion of the system.

### ELECTRICAL SYSTEM COMPONENTS

Serviceable components shall be readily accessible. Switches, relays, terminals and connectors shall have a dc rating of 125% of the maximum current for which the circuit is protected.

A distributed power and signal system shall be utilized on the apparatus to minimize power supply voltage drops. Power and signal distribution areas in the cab shall be concentrated in five (5) areas.

A lower cab power and signal distribution center shall be located in the center forward

portion of the cab "dash". It shall be hinged and opened by unlocking two (2) top mounted, double hinged, lift and pull latches. This area shall contain relays and circuit breakers installed in a logical and serviceable fashion.

An additional lower cab power and signal distribution center shall be located below the officer's dash behind the kick plate.

An upper power and signal distribution area shall be located in the forward portion of the cab ceiling, above the engine tunnel. Components in this area shall be permanently labeled and easily accessible by opening a hinged cover.

A power and signal distribution area shall be located in the pump module, if applicable. Components in this area shall be permanently labeled and easily accessible.

A power and signal distribution area shall be located on the front of the forward body compartments. Components in these areas shall be permanently labeled and easily accessible.

All electrical components or devices installed in an exposed area on the outside of the cab or body shall be mounted in such a manner, or protected by a gasket, caulking or other means, so that moisture shall not accumulate in it.

#### CORROSION PROTECTION

Externally exposed, non-plug type, electrical connections shall be given a hand applied or sprayed application of an industrial standard insulation coating with a minimum rating of 2100 volts per mil thickness. Insulation shall protect the connection from water induced electrical corrosion and accidental short circuiting. Should the connection be loosened or removed during the manufacturing process another coating shall be applied after it has been refastened or replaced.

One (1)

Main Battery and Starter Circuits

Y\_\_\_N\_\_\_

#### MAIN BATTERY AND STARTER CIRCUITS

#### BATTERY POWER BUSS

All positive cables from the batteries shall be connected directly to a battery positive buss bar located as close to the batteries as practical. The alternator shall be wired directly to the battery positive buss bar through the ammeter shunt, if one is provided.

#### ENGINE STARTER AND INTERLOCK CIRCUITS

The starter solenoid(s) shall be connected directly to the battery positive buss bar. An interlock shall be provided to prevent the operator from engaging the starter when the engine is running.

#### BATTERY GROUND BUSS AND SINGLE POINT GROUND SYSTEM

All negative (ground) cables from the batteries shall be connected directly to a battery negative buss bar located as close to the batteries as practical. A 2/0 AWG cable shall connect the battery negative buss bar to the chassis frame. Appropriately sized ground feeder cables shall be utilized to provide a low impedance ground path to the negative buss bar for all electrical devices on the apparatus.

APPARATUS GROUND BONDING

A 2/0 AWG cable shall connect the battery negative buss bar to the chassis frame. The cab, pump enclosure (if furnished), and body structure shall be electrically bonded to the vehicle frame with two (2) 2 AWG braided copper grounding straps.

One (1)

EMI/RFI Protection  
EMI/RFI PROTECTION

Y\_\_N\_\_

The apparatus electrical system and related devices shall have the ability to function in the severe electromagnetic environment typical of fire ground operations.

EMI/RFI EMISSIONS

State-of-the-art electrical system design and components shall be utilized to ensure the suppression of radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions that may cause communication and navigation radio-reception interference. The electrical system and related components shall comply with the applicable sections of J551/1 *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*

EMI/RFI SUSCEPTIBILITY

The apparatus electrical system shall incorporate immune circuit designs, filtering, shielding and twisted-pair wiring to control EMI/RFI susceptibility. Particular attention shall be given to harness and cable routing to minimize the potential for conducted and radiated signal susceptibility.

Electrical / electronic equipment on the apparatus shall not be susceptible to radiated and conducted EMI/RFI emissions from on-board radio transmitter(s) and shall comply with the requirements of SAE J551-12 *Vehicle Electromagnetic Immunity--On-Board Transmitter Simulation*.

One (1)

Low Voltage Electrical System Performance Testing  
ELECTRICAL SYSTEM PERFORMANCE TESTING

Y\_\_N\_\_

An operational test shall be conducted to ensure that all installed electrical equipment is properly connected and is in working order. The apparatus alternator shall be tested with the total continuous electrical load applied and engine running up to the engine manufacturer's governed speed for a minimum of 2 hours. Additionally, all warning lights shall be run continuously during the three (3) hour NFPA pump certification test (or at another time for not less than three (3) hours). Activation of the load management system (if furnished) shall be permitted during this test. An alarm sounded by excessive battery discharge, as detected by the low voltage warning system, or a system voltage of less than 11.8 V dc at the battery for more than 120 seconds, shall be considered a test failure.

One (1)

Cab Dash & Instruments  
CAB DASH AND INSTRUMENTS FOR 2013 EMISSIONS ENGINE

Y\_\_N\_\_

A non-glare instrument panel, custom designed to accommodate the appropriate functions, shall be provided. Illumination shall be provided for controls, switches, instruction plates, gauges, and instruments necessary for the operation of the apparatus. The cab dash shall

be forward slanted, and constructed of aluminum.

A system shall be provided that interacts with the engine electronics and eliminates redundant senders and switches. The electronic engine gauges shall receive information on the SAE J1939 data link to improve reliability and gauge accuracy. Connectors shall be utilized for ease of service. The dial face shall be black with white lettering. The primary letters shall be in Imperial with the secondary, smaller letters in metric. The dial shall have international non-language symbols for the gauge function (except speedometer). Gauges shall have illumination with a monochrome LCD display located on the speedometer gauge. They shall also have a 250 degree dial sweep for greater definition of scale. SAE J1939 Faults and Warnings shall be displayed on the LED display.

### DRIVER'S INSTRUMENTATION

The following gauges shall be provided:

#### Main Gauges

3" Speedometer:	0-85 mph with built-in LCD display
Speedometer Mode Switch:	Allows operator to select menu items in the display screen
Speedometer Up Switch:	Allows operator to scroll up through display menu items
Speedometer Down Switch:	Allows operator to scroll down through display menu items
3" Tachometer:	0-4000 rpm

#### Satellite Gauges

2" Fuel Level:	Empty – full with low level warning indicator
2" Voltmeter:	10-16 VDC
2" Coolant Temperature:	100-240 Degrees Fahrenheit
2: Engine Oil Pressure:	0-80 psi
2" Transmission Oil Temp:	100-320 Degrees Fahrenheit
2" Front Air Pressure:	0-150 psi
2" Rear Air Pressure:	0-150 psi
2" DEF Level:	Empty – full with low level warning indicator

### DRIVER'S INDICATOR LIGHT MODULE

The following indicators shall be mounted in a removable modular panel in front of the steering column. The indicators shall be identified with universal ISO 2575 symbols where applicable and visible to the driver while seated. All applicable indicators in the modular panel shall automatically illuminate for 1 second upon activation of the ignition switch to verify operation:

- Battery Switch "On" green indicator light
- Ignition Switch "On" indicator
- Check Transmission amber indicator light
- Check Engine amber indicator light
- Stop Engine (Engine Warning) red indicator light
- High Exhaust Temperature (HEST) amber indicator light (if applicable)
- Diesel Particulate Filter Regeneration (DPF) amber indicator light (if applicable)
- Wait-to-Start amber indicator light (if applicable)

- Malfunction Indicator Light (MIL) amber indicator light (if applicable)
- ABS warning amber indicator light
- ATC/ESC activated amber indicator light
- Spring (Parking) Brake "On" red indicator light
- High Beam "On" blue indicator light
- Low air pressure red indicator light
- Left Turn signal green indicator light
- Right Turn signal green indicator light
- General Warning red indicator light (if applicable)
- DEF Level Indicator Light

### AUDIBLE CAB ALARMS

Audible alarms shall be provided in the cab to alert the operator of conditions that require attention. The alarm device(s) shall be audible in the driving compartment and feature an adjustable volume control.

An intermittent audible tone shall sound when the following conditions are present and the parking brake is disengaged:

- Active Hazard Warning –  
(Do Not Move Apparatus; Door Open, Tower Raised, Ladder Rack Down, etc.)
- Seat Belt Warning

A steady audible tone shall sound when the following conditions are present:

- Stop Engine (includes High Engine Temperature and Low Engine Oil Pressure)
- Low Voltage
- Engine Air Filter Restriction
- Jackknife Warning (if applicable)
- Tiller Cab Operator Not in Position (if applicable)

### DRIVER'S AND OFFICER'S CONTROLS

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

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

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

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

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

Parking (Spring) Brake Control  
High Idle control switch  
Other controls (as defined elsewhere in this specification)

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

HVAC control panel

Other controls (as defined elsewhere in this specification)

One (1)      Emergency & Work Light Switch Panel - Driver      Y\_\_N\_\_  
EMERGENCY & WORK LIGHT SWITCH PANEL - DRIVER'S SIDE

All emergency light and work area lighting control switches shall be mounted in a removable panel located in the overhead position on the driver's side of the cab. The light switches shall be "rocker" type with an internal indicator light (where applicable) to show when the switch is energized. All switches shall be properly identified by an illuminated label for night driving.

A master warning light switch shall be provided for emergency lighting.

One (1)      Door Ajar/Hazard Warning Indicator – LED      Y\_\_N\_\_  
DOOR AJAR/HAZARD INDICATOR LIGHT (DO NOT MOVE APPARATUS)

A Whelen "T0" series 2" round red flashing LED light with chrome flange shall illuminate automatically whenever the apparatus parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is open.
- Any ladder or equipment rack is not in the stowed position.
- Stabilizer system is not in its stowed position.
- Powered light tower is extended.
- Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

The hazard warning light shall be identified with a label that reads: "Do Not Move Apparatus When Light Is On." The light shall be located on the ceiling between the driver and the officer.

One (1)      Digital Clock      Y\_\_N\_\_  
DIGITAL CLOCK

A 12/24 hour real-time digital clock shall be identified and visible to both the driver and officer while seated.

One (1)      Electrical Wiring - 12V INTELEX™ PLUS, MII      Y\_\_N\_\_  
ELECTRICAL WIRING REQUIREMENTS - INTELEX™ PLUS

The apparatus shall be equipped with an INTELEX™ PLUS management system for control of the electrical system devices, where applicable.

## CIRCUIT PROTECTION

Circuit protection devices shall be utilized to protect each electrical circuit. All circuit protection devices shall be sized according to 125% of the anticipated load to prevent wire and component damage when subjected to extreme current overload.

## SOLID STATE CIRCUIT PROTECTION

Intelix power distribution modules shall utilize solid state output channels and feature fully protected high-side drivers (+12V) to protect wiring. High-side drivers shall provide overload protection, current limitation, transient protection, and replicate the function of an automatic reset circuit breaker. If output current exceeds the rated amperage, the output shall automatically turn off. After 30 seconds, the module shall attempt to re-energize the load. If the output is still overloaded, it shall remain off until the power is cycled. In the event of a communications loss with the vehicle's control module, all outputs not controlling a moving device, such as a ladder rack, shall remain in their previous state until communication is restored or the power is cycled.

NON-SOLID STATE CIRCUIT PROTECTION

Circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258 unless operational requirements and/or safety concerns dictate Type-III manual reset type conforming to SAE J1625. Automotive-type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized when required to protect electronic equipment.

POWER CONTROL RELAYS AND SOLENOIDS

Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the anticipated current load.

BUSSMANN MVEC RELAYS AND CIRCUIT PROTECTION

Manufactured as a hardened and weather tight module, the mVEC is rated at 200 Amps. The mVEC is configured to provide various OEM circuit protection and switching functions, using industry standard fuses, relays and breakers, with the status and control of each circuit accessible through J1939 CAN open messages. Each mVEC is rated at 200 Amps, with individual outputs rated up to 30 Amps. Waterproof to high pressure spraying (IP66 equivalent). The mVEC is designed and manufactured with robust features such as heavy-duty housing, silicon and Gortex gaskets, and protective conformal coated electronics, to operate in demanding vehicle environments such as those found in fire apparatus.

One (1)

Information Center II - INTELEX™ PLUS  
INFORMATION CENTER II

Y\_\_N\_\_

A 6" color display capable of displaying graphical images as well as text messages shall be located on the cab dash. The main display page shall include the date and time. Additional information pages shall be provided for the seat belt status, warning indications, not stowed indications, and open doors.

APPARATUS STATUS INDICATORS AND AUDIBLE ALARMS

If a monitored "Not Stowed" or "Warning" condition is active, the corresponding status indicator shall flash. In addition to visual indicators, audible alarms shall sound when designated conditions activate the "Not Stowed" and "Warning" status indicators.

WARNING INDICATOR

A flashing red triangle symbol shall alert the vehicle occupants of an active "WARNING" condition. This is defined as a situation or status on the vehicle that is of high priority or "mission critical" nature. The flashing red triangle shall be displayed on the Information Center and dash gauge panel in front of the driver. The following are typical "Warning" (high priority) conditions:

HYDRAULIC FILTER	LOAD MANAGE	LOW AIR PSI
CAB NOT LOCKED	LOW VOLTAGE	JACK KNIFE
AIR RESTRICTION	ABS FAULT	TRAILER ABS

NOT STOWED INDICATOR

A flashing Not Stowed indicator shall alert the vehicle occupants of an active "Not Stowed" condition. This is defined as a situation or status on the vehicle that is not of high priority or "mission critical" nature, but requires attention before the vehicle is put in motion. The following are typical "Not Stowed" (not high priority) conditions:

AERIAL RAISED                      DECK GUN RAISED                      JACKS

EXTENDED

The following items are considered Not Stowed only when the parking brake is released.

LADDER UP	JACKS EXTENDED	Q2B TILTED
LIGHT TOWER UP		
DECK GUN RAISED	DS TELE	LIGHT UP
OUTRIGGERS	STEP DOWN	PS TELE
LIGHT UP		
DS HATCH OPEN	PS HATCH OPEN	

AUDIBLE ALARMS

The following conditions shall cause the audible alarm to sound "steady" (not an intermittent beep); signifying a "mission critical" condition exists that requires immediate attention.

STOP ENGINE	CAB NOT LATCHED	LOW VOLT
LOW AIR	ABS FAULT	
LOW COOLANT	LOW OIL PRESSURE	

Corresponding "Low Air", "Stop Engine" visual indicators shall be located in the dash gauge panel in front of the driver.

The following conditions shall cause a chime alarm to sound "intermittently" (i.e., beep), once the parking brake is released, signifying a condition exists that may become "mission critical" if not quickly addressed.

ANY LIGHT NOT STOWED  
 ANY BODY DOOR OPEN  
 ANY CAB OR CREW CAB DOOR OPEN

OPEN DOORS / DEPLOYED EQUIPMENT RACKS / EXTENDED STEPS

When a cab or compartment door is open, a step is extended, or equipment (i.e., ladder) rack is deployed, the "DOORS" indicator shall flash. Pressing the corresponding button shall display an overhead graphical representation of the apparatus. This image depicts the open cab door(s), open compartment door(s), deployed equipment rack(s), and/or extended step(s). The chime alarm shall also sound when the parking brake is released.

One (1)

Load Management System - INTELEX™ PLUS  
AUTOMATED ELECTRICAL LOAD MANAGEMENT SYSTEM

Y\_\_N\_\_

The apparatus shall be equipped with an automated load management system. The load management system shall monitor battery voltage and activate the engine high idle system (provided NFPA interlocks have been established) before disabling any electrical loads. If

engine high idle is not available or activation does not result in sufficient battery system voltage, individual electrical loads shall be automatically and sequentially deactivated until voltage returns to an acceptable level. Loads shall be sequentially reactivated to avoid a sudden large voltage demand on the system. Electrical loads defined in NFPA 1901 as “minimum continuous” shall not be subject to automatic load management. Load prioritization shall be independently field programmable by authorized users.

If the load management system becomes active, the “LOAD MANAGE” indicator shall illuminate on the "Warnings" page of the INTELEX™ PLUS cab mounted display.

One (1)

Load Sequencer - INTELEX™ PLUS  
LOAD SEQUENCER

Y\_\_N\_\_

A sequential switching device shall automatically energize the specified optical warning devices to minimize potentially damaging voltage fluctuations due to the sudden addition or removal of large current demands on the electrical system. Upon activation of the “EMERGENCY MASTER” warning switch and provided the individual optical warning device switches are also activated, the following loads shall be activated (or deactivated) in 0.5 second intervals:

- Front Light Bar
- Side Light Bar (if applicable)
- Front and Rear Flashing Lights
- Side Warning
- Rear Beacons
- High Beam Headlight Flash

One (1)

Vehicle Data Recorder & Seat Monitor - FRC #SBA300, INTELEX™ PLUS  
VEHICLE DATA RECORDER AND SEAT MONITOR DISPLAY

Y\_\_N\_\_

Fire Research series SBA300-A00 seat monitor display and vehicle data recorder kit shall be installed. The kit shall include a seat monitor display module, a vehicle data recorder, and cables.

The seat monitor display shall be programmable for up to thirteen (13) seats and have a seatbelt icon for each. An alarm silence button and LED indicators for power and data link status shall be located on the front of the seat monitor display.

The data recorder case shall be waterproof. It shall have inputs for monitored information from the vehicle J1939 CAN bus, independent sensors, seatbelt and seat occupied switches, outputs for audible alarms, and two-way FRC data link connectors.

The vehicle data recorder shall record the following data once per second and store it in a 48 hour loop:

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

- Date

The vehicle data recorder shall record the following data once per minute and have memory to store it for 100 engine hours:

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

The oldest data shall be erased first when memory capacity is reached. All data shall be password protected and up loadable from the vehicle data recorder to a computer running FRC HAWK data management software. The HAWK software shall store, manage, provide graphic displays and produce formatted reports of the vehicle data recorder data.

One (1)

Electrical System Diagnostics - INTELEX™ PLUS  
ELECTRICAL SYSTEM DIAGNOSTICS

Y\_\_N\_\_

The apparatus shall feature on-board electrical system diagnostics and provision for off-board diagnostic service equipment.

ON-BOARD DIAGNOSTICS

On-board diagnostic indicators shall be provided to support rapid troubleshooting of the INTELEX™ PLUS based electrical power and signal system. The input and output status of each INTELEX™ PLUS system module shall be easily determined through easy to use display pages.

Switches shall be provided in the cab to allow the operator or service personnel to obtain On-Board diagnostic information from the ABS system and Engine Controller.

A troubleshooting guide shall be provided with the vehicle to assist with interpretation of the diagnostic signals.

OFF-BOARD DIAGNOSTIC PROVISION

An interface port shall be provided for service access to the INTELEX™ PLUS data bus. The diagnostic port shall be mounted inside the cab on the driver side in a location that is accessible from the ground.

One (1)

Power Studs - Overhead Switch Panel, (3) Stud Switched  
POWER STUDS (OVERHEAD SWITCH PANEL)

Y\_\_N\_\_

Three (3) studs shall be provided in the overhead switch panel to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

- One (1) Power Studs - Cab Dash Area, (4) Stud Switched  
POWER STUDS (CAB DASH) Y\_\_N\_\_
- Four (4) studs shall be provided in the cab dash area to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.
- One (1) No Buss Bar Required Under Officer's Seat Y\_\_N\_\_
- One (1) No Power Strip & Receptacle Required on Driver's Side Cab Interior Wall Y\_\_N\_\_
- One (1) Dash Layout Drawing - MII INTELEX™ PLUS Multiplex, Full Tilt Cabs  
DASH LAYOUT Y\_\_N\_\_
- The Manufacturer shall furnish a dash layout drawing to the Fire Department for their review and approval. The drawing shall detail the locations for installation of radios, sirens, light switches, gauges, etc. Due to the cab dash configuration and electrical wiring design, the components shall have designated locations that each will fit. The Fire Department shall review and approve the layout during the Engineering Conference.
- One (1) 12V Power Point - Officer's Side Dash (Ea)  
12 VOLT PLUG(S) AND RECEPTACLE Y\_\_N\_\_
- One (1) 12 volt power plug receptacle and cover shall be provided on the officer's side of the dash and shall be wired battery direct. The plug and receptacle are made from corrosion resistant marine grade materials. The plug locks into the receptacle providing a positive moisture proof connection.
- Location of the 12V Power Point shall be provided at the Engineering Conference.**
- One (1) USB Charger Port - Kussmaul Dual Port #091-219 (Ea)  
USB CHARGER PORT Y\_\_N\_\_
- One (1) Kussmaul Electronics model 091-219 USB Dual Charger Ports shall be located on the dash. **Location to be provided at the Engineering Conference.**
- Two (2) Two-Way Radio Antenna Mount - Universal w/ Cable (Ea)  
TWO-WAY RADIO ANTENNA MOUNTS Y\_\_N\_\_
- Two (2) universal antenna mounts, Model MATM, with 17 feet of coax cable and weatherproof cap shall be provided for the two-way radio equipment. The mounts shall be installed in the cab roof. The cable shall be routed to the lower dash, or as requested by the customer, with any excess cable secured in an accessible location. All installation locations and cable routing shall be confirmed with the customer during the pre-construction process.
- Installation location shall be provided at the Engineering Conference.**
- One (1) Headset Intercom System - David Clark 3800, Single Radio Y\_\_N\_\_

INTERCOM SYSTEM

A David Clark Series 3800 intercom system for single radio shall be provided and installed on the apparatus. This system shall provide for in cab and on-scene communications for the crew.

The system shall be compatible with UHF and VHF radios and be able to interface with each radio connected to the intercom using a mobile interface cable. David Clark connectors and double-shielded cable shall be used. Cable substitution can cause noise in the system.

One (1) Intercom - David Clark, 4-Person Cab, Driver/Officer  
INTERCOM MODULES

Y\_\_N\_\_

The David Clark modules shall provide radio transmit/receive and intercom capabilities for both the driver and the officer seating locations. Modules provided shall be the U3811 for the driver and the U3815 for the officer. The U3800 Master Station and the U3805 shall also be provided. All modules and headset hooks shall be installed on the cab ceiling in user locations.

The U3800 Master Station is required with each system. It shall accommodate two headsets that do not require radio transmit function. It shall adjust automatically for 12 or 24 VDC power source. It shall contain the system on/off switch, the master volume control, two headset jacks with listen level controls, power input connector, and two remote output connectors. It shall draw less than 600 milliampere current. It shall measure 8-1/4"L x 5-3/4"W x 4-3/4"D.

The U3805 Radio Cord Junction Module shall permit a maximum of 4 Series 3800 Radio Interface Modules to be connected to one radio. It shall measure 6-3/4"L x 5-1/4"W x 2-3/8"D.

The U3811 Radio Interface Module shall provide isolated radio transmit function for one headset and radio receive function for all users. It shall contain one radio push to talk switch, one listen level control, one system input connection, and one radio input connection. It shall measure 6-1/4"L x 5-1/4"W x 2-3/4"D.

The U3815 Radio Interface Module shall provide radio transmit function for one headset and radio receive function for all users. It shall contain one radio push to talk switch, one headset jack and listen level control, one radio input connection, two intercom connectors and one connector for remote PTT. It shall measure 7"L x 4-1/3"W x 3-1/8"D.

One (1) Intercom - David Clark, 4-Person Cab, Crew Config. A  
INTERCOM MODULES

Y\_\_N\_\_

The David Clark modules shall provide intercom capabilities only for the crew seating. The rear facing crew member behind the officer shall plug into the U3800 module. The rear facing crew member behind the driver shall plug into a U3801 module. All modules and headset hooks shall be installed on the cab ceiling in user locations.

The U3801 module shall have one headset jack and a listen level control. It shall measure 3-1/4"L x 4-3/4"W x 3"D.

One (1) Radio Interface Adapter - David Clark 40107G-01  
RADIO INTERFACE ADAPTER

Y\_\_N\_\_

A David Clark 40107G-01 radio interface adapter with a 5 ft cord shall be provided.

One (1) Headset - Driver, DC #H3492, Over Head, Single Earpiece Y\_\_N\_\_  
HEADSET - DRIVER

One (1) David Clark model #H3492 over head, single earpiece style headset shall be provided for the driver. Each headset shall have one (1) headset hanger hook located above the seat position. Headset hanger location shall be confirmed by the customer during the pre-construction process.

This headset shall provide a noise reduction of 23dB. It shall have a microphone on/off button. The boom shall have full flex for precise positioning and shall rotate 200 degrees for left or right side placement. It shall have a shielded 4-conductor, 5 ft coiled cord with PJ-051 plug.

One (1) Headset - Officer, DC ##H3492 Over Head, Single Earpiece Y\_\_N\_\_  
HEADSET - OFFICER

One (1) David Clark model #H3492 over head, single earpiece style headset shall be provided for the officer. Each headset shall have one (1) headset hanger hook located above the seat position. Headset hanger location shall be confirmed by the customer during the pre-construction process.

This headset shall provide a noise reduction of 23dB. It shall have a microphone on/off button. The boom shall have full flex for precise positioning and shall rotate 200 degrees for left or right side placement. It shall have a shielded 4-conductor, 5 ft coiled cord with PJ-051 plug.

Two (2) Headset - Crew, DC #H3442, Under Helmet (Ea) Y\_\_N\_\_  
HEADSETS - CREW CAB

Two (2) David Clark model #H3442 under helmet style headset shall be provided for the crew. Each headset shall have one (1) headset hanger hook located above the seat position. Headset hanger location shall be confirmed by the customer during the pre-construction process.

This headset shall provide a noise reduction of 23dB. It shall have a microphone on/off button. The boom shall have full flex for precise positioning and shall rotate 200 degrees for left or right side placement. It shall have a shielded 4-conductor, 5 ft coiled cord with PJ-051 plug.

One (1) Camera System - (3) Rosco #STSK7165, 7" LCD, Rear, RS & LS Y\_\_N\_\_  
REAR VIEW CAMERA SYSTEM

A Rosco rear view color camera system, model STSK7165, shall be provided and installed. The system shall consist of the following items:

- One (1) STSM205 7" LCD monitor, 7.2" wide x 4.8" high x 1.1" deep, with remote control.
- One (1) STSC101 color camera with microphone, 120 degree lens and 18 infrared LEDs.
- Two (2) STSC109B side color cameras with microphone, 150 degree lens and infrared night vision.
- One (1) 65 foot cable
- One (1) STSH301 Harness

- Two (2) STSH304 Harnesses
- Mounting brackets and hardware

One camera shall be mounted on the rear upper bulkhead near center to provide a rear view. The other cameras shall be mounted on each side of the cab to provide side blind spot viewing and **possibly assist on “jack” placement location.**

**The monitor shall be installed hanging from the overhead console, Zone 9.**

One (1) Rear Sentry Vehcile Object Detection System Y\_\_N\_\_  
**REARSENTRY VEHICLE OBJECT DETECTION SYSTEM**

**One (1) Rostra RearSentry Fleet Vehicle Object Setection System Model #250-2526 Heavy Duty Ramp Style Fit Kit - 40' shall be provided and installed. The RearSentry vehicle reversing system is designed to alert drivers to objects at the rear of the vehicle as far away as twelve feet away. This includes objects beyond the vehicle's corners. With the ability to detect unseen objects, a RearSentry reversing system helps to save on costly cosmetic repairs and could reduce insurance and legal claims. With their ability to "see through" mud, snow or glaring sun, the RearSentry sensors make sure you have more time to pay attention to what is most important.**

One (1) Batteries - (6) Champion, 12V, 950 CCA Y\_\_N\_\_  
**BATTERIES**

Six (6) Champion 12V Group 31 950 CCA batteries shall be installed three each side of the cab under the rear entrance way.

Heavy-duty battery cables shall be provided to maximize power available to the electrical system.

One (1) Jumper Cable Studs - Under Driver's Side Battery Box Y\_\_N\_\_  
**JUMPER CABLE STUDS**

A pair of jumper cable studs with color coded covers shall be provided under the driver's side battery storage area.

One (1) Battery/Electrical Component Storage Areas - S/S, Full Tilt Cabs Y\_\_N\_\_  
**BATTERY AND ELECTRICAL COMPONENT STORAGE AREAS**

Battery and electrical component storage areas shall be constructed of stainless steel with structural steel tubes at the corner mounting points and shall be located one (1) each side mounted on the vehicle frame. They shall be well ventilated and enclosed to protect against road splash and debris. Suitable provisions shall be provided for drainage.

The batteries shall be held firmly in place by providing a full frame type top clamp which encloses the battery set on all four (4) upper corner sides. The one piece clamp shall be fabricated of 3/4" angles and be held in place by two (2) "J" shaped clamping bolts. Battery inspection shall be available by tilting the full tilt cab.

One (1) Battery Disconnect Switch - Blue Sea 350 Amp Y\_\_N\_\_  
**DISCONNECT SWITCH - BLUE SEA 9003**

A master load disconnect switch shall be provided between the battery positive buss bar and the remainder of the switched battery electrical loads on the apparatus. A green "battery on" pilot light that is visible from the driver's position shall be provided.

One (1) single battery system switch mounted near the driver's side front entrance in a location so it may be turned off by a person standing on the ground outside the vehicle. It shall have the capacity to handle 350 amps of continuous power.

One (1) Air Comp/Bat. Charger - Kussmaul #52-21-1100 Pump Plus 1200 Y\_\_N\_\_  
AIR COMPRESSOR/BATTERY CHARGER

A Kussmaul model #52-21-1100 "Pump Plus 1200" combination air compressor/battery charger shall be installed. The 12 volt compressor will automatically replace air lost due to leakage in the brake system without any interference to engine mounted air compressor functions. The 12 volt automatic battery charger shall maintain a single battery bank with charging capabilities to 40 amps maximum output. A remotely located bar graph display shall indicate the state of charge of the batteries whenever the system is connected to 120 VAC.

A selector switch shall be provided on the charger to operate the compressor either as a DC compressor or as an AC compressor. The switch shall be placed in the A. C. position.

One (1) Location - Floor behind Driver's Seat Y\_\_N\_\_  
It shall be located on the floor behind the driver's seat.

One (1) Battery Charger Cover Y\_\_N\_\_  
BATTERY CHARGER COVER

A smooth aluminum cover shall be provided over the battery charger. The outside finish shall match the cab interior finish.

One (1) "Super Auto Eject" Plug - Kussmaul 20 Amp, 120 VAC Y\_\_N\_\_  
AUTO EJECT PLUG

A Kussmaul 20 Amp, 120 VAC "Super Auto Eject" shoreline power connector shall be provided for the battery charger. The shoreline power connector shall be provided with a spring loaded cover to prevent water from entering when the shoreline is not connected. A label shall be permanently affixed at the power inlet that indicates the line voltage in volts and the current rating in amps.

One (1) Super Auto Eject Plug Location - Behind Driver's Door on Cab's Side Y\_\_N\_\_  
The Kussmaul Super Auto Eject Plug shall be located behind the driver's door on the cab's side.

One (1) Super Auto Eject Cover Color - Red Y\_\_N\_\_  
The Super Auto Eject Cover shall be red.

One (1) Upper Raised Bezel Surrounds, with Panels, (2) Y\_\_N\_\_  
UPPER RAISED BEZEL SURROUNDS, WITH PANELS

A custom raised and chrome plated bezel shall be installed on the front face of the cab, on each side of the front grille. Housed within each bezel shall be a removable panel, painted job color. The removable panel shall provide service access to the forward side, firewall mounted electrical connections and wiring harness.

One (1)      Headlights - Quad, Sylvania Silverstar, (2) with Dual Light Bezels      Y\_\_N\_\_  
HEADLIGHTS

Two (2) Sylvania Silverstar H4656ST high/low beam bulbs and two (2) Sylvania Silverstar H4651ST low beam only bulbs shall be mounted on the front cab face to the left and right of the engine cooling intake grille. The headlights shall be quad type, rectangular halogen with bright finished trim rings and bezels. The low beam headlights shall be located at the outer position.

**Headlights shall be in the middle position.**

Lowest position is not available when a Q2B siren, bell or front suction blocks the light output.

One (1)      Headlights - Alternating, Flashing      Y\_\_N\_\_  
ALTERNATING FLASHING HEADLIGHTS

The chassis high beam headlights shall flash alternately controlled by a rocker switch.

One (1)      Front Directional Whelen M6 Flanges, (2)      Y\_\_N\_\_  
FRONT DIRECTIONAL FLANGES

A pair of chrome plated flanges shall be provided for the Whelen M6 series front directional lights. One (1) flange shall be located on each side of the cab front face.

**The front directional light flanges shall be in the lowest position.**

Lowest position is not available when a Q2B siren, bell or front suction blocks the light output.

One (1)      Front Directional Lights - Whelen M6T, LED, Amber Arrow, (2)      Y\_\_N\_\_  
FRONT DIRECTIONAL LIGHTS

There shall be one (1) Whelen M6T LED amber arrow directional signal light installed on each side of the cab front face. The light lens shall have an amber arrow shape with black background and shall be provided with a "flash" pattern; a "sweep" pattern shall not be allowed.

One (1)      Additional Front Warning Light Dual Light Bezels, (2)      Y\_\_N\_\_  
ADDITIONAL FRONT WARNING LIGHT DUAL LIGHT BEZELS

An additional pair of bright finished dual light bezels shall be provided for the optional warning lights.

One (1)      Marker/ID/Clearance Lights - LED Pedestal, Front Cowl Surface Mount      Y\_\_N\_\_  
LIGHTS

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

Five (5) pedestal mount Truck-Lite model 10 Beehive, amber LED type clearance and identification lights with chrome mounts shall be installed across the top leading edge of the cab roof.

A Techniq S34 amber LED marker light shall be recess mounted in a rubber sealing grommet placed in the lower side of the front cowl, on each side of the cab. The light body shall be urethane filled to ensure against moisture intrusion. These cowl mounted lights shall have 100,000 hour life and shall carry a manufacturers 10 year warranty.

Seven (7) Techniq S34 red LED marker and clearance lights shall be installed at the rear of the body. The three light identification cluster shall be surface mounted on the rear step vertical flange. Two lights shall be placed at each lower rear body corner, facing the side. Two lights shall be placed in the upper rear body corners, facing the rear.

One (1) Side Turn/Marker Lights - T/L #60117Y, Amber LED/Polished, Midship (Req 30' OAL+) Y\_\_N\_\_  
TURN/MARKER LIGHTS

One (1) Truck-Lite model 60117Y turn/marker light shall be provided and installed on the rear fender panel below the forward air bottle compartment on each side of the vehicle. The lights shall have an amber polycarbonate lens and highly polished stainless steel mounting flange or bezel.

One (1) License Plate Bracket & LED Light Y\_\_N\_\_  
LICENSE PLATE LED LIGHT & BRACKET

A steel license plate bracket, painted black, shall be installed on the left rear of the vehicle **on the rear vertical face of the compartment to the rear of the tiller wheelwell.** Mounted on the license plate bracket shall be a chrome light bracket containing a 12 volt LED lamp that shall illuminate the license plate.

One (1) D.O.T. Reflectors Y\_\_N\_\_  
D.O.T. REFLECTORS

Reflectors shall be placed on the cab and body as required by Federal standards. An amber reflector, Signal Stat, model 32ADB, shall be placed on each side of the cab. Four (4) Signal Stat model 32DB red reflectors shall be located on the rear face and sides of the body. The reflectors shall be rectangular in shape.

One (1) Cab Side Direct Lights - Double Faced, Britax Y\_\_N\_\_  
SIDE DIRECTIONAL LIGHTS

Britax model #428, short rubber side directional lights shall be provided in addition to the front turn signals. One (1) light shall be mounted just above the front fender on each side of the cab. Lamp shall have an amber plastic lens at front and a red lens facing rear.

One (1) Configuration of Brake/Turn/Backup/Warning Lights at Rear of Apparatus Y\_\_N\_\_  
BRAKE/TURN/BACKUP/WARNING LIGHTS CONFIGURATION

The brake, turn, backup and warning lights shall be located at the rear of the apparatus. Each light shall be mounted horizontally in a vertical configuration, one light atop the other.

**The order of lights shall be as follows:**

- Top:                    Directional**
- Second from top:    Brake**
- Third from top:      Back-Up**
- Bottom:                Warning**



-----  
-----  
-----

One (1) Brake/Tail Lights- (2) Whelen, M6BTT, LED Y\_\_N\_\_  
BRAKE/TAIL LIGHTS

Two (2) Whelen M6 series LED red brake/tail lights, model M6BTT, shall be mounted at the rear of the apparatus, one on each side. All brakes lights shall be shall be programmed for "steady burn" operation in compliance with FMVSS No. 108.

One (1) Rear Turn Signals - (2) Whelen, #M6T, LED, Amber Y\_\_N\_\_  
TURN SIGNAL LIGHTS

Two (2) Whelen M6 series Super-LED amber turn lights, model M6T, shall be mounted at the rear of the apparatus, one on each side. They shall be provided with a "flash" pattern; a "sweep" pattern shall not be allowed.

One (1) Back Up Lights - (2) Whelen, #M6BUW, LED Y\_\_N\_\_  
BACK UP LIGHTS

Two (2) Whelen M6 series clear Super-LED back up lights, model M6BUW, shall be mounted at the rear of the apparatus, one on each side.

Three (3) Bezels (2) - Stop/Turn/Backup, Whelen, Chrome, f/ 600 series (Per Pair) Y\_\_N\_\_  
BEZELS

Three (3) pair of Whelen #6EFlange chrome plated bezels shall be provided for the 600 series rear stop, turn, and backup lights.

One (1) Rear Floodlights - (2) Whelen PAR36, 12 Diode Super-LED, Cab Switch Y\_\_N\_\_  
REAR PICKUP LIGHTS

Two (2) Whelen PAR36 chrome plated Super-LED floodlights, model PFBP12C, with 12 diodes, shall be installed at the rear of the apparatus. Each light shall be manually operated and switched on and off at the light. A switch shall be provided in the cab. This switch shall be dependent upon the switch on the light.

One (1) Light Activation - Step Lights, Ground Lights Y\_\_N\_\_  
LIGHT ACTIVATION

The cab ground and step lights shall be activated with the cab door open switch.

The step and ground lights on the body shall be activated with the parking brake in conjunction with the marker lights.

One (1) Step Lights - (8) Cab, TecNiq Eon, LED Y\_\_N\_\_  
CAB STEP LIGHTS

Eight (8) TecNiq model EON, LED step lights shall be provided, two (2) at each cab entrance door. They shall be mounted one (1) above and one (1) below each intermediate step.

One (1) Step Lights - (4) Body, TecNiq T410, LED, Recessed  
TURNTABLE STEP LIGHTS Y\_\_N\_\_

Two (2) TecNiq T410 LED step lights with a rubber grommet shall be recess mounted, one (1) on each side to illuminate the folding steps to the turntable.

One (1) TecNiq T410 LED step light with rubber grommet shall be recess mounted to the forward side of each rear tractor fender to illuminate the tractor running boards.

One (1) Step Lights - Access Ladder, TecNiq Eon LED, Surface Mounted  
ACCESS LADDER STEP LIGHTS Y\_\_N\_\_

The access ladder shall be illuminated by TecNiq Eon LED horizontal surface mounted step lights.

One (1) Step Lights - Turntable  
TURNTABLE STEP LIGHTS Y\_\_N\_\_

There shall be three (3) step lights at the base of the aerial to illuminate the turntable stepping surfaces.

There shall be a LED step light on the pedestal to illuminate the area around the pedestal. This light shall be activated with the aerial PTO.

One (1) Ground Lights - (4) Cab, TecNiq #T410 LED  
GROUND LIGHTS Y\_\_N\_\_

Four (4) weatherproof TecNiq #T410 LED ground lights shall be provided underneath the cab, per NFPA requirements.

One (1) Ground Lights - (4) Body, TecNiq #T410 LED  
GROUND LIGHTS Y\_\_N\_\_

Four (4) weatherproof TecNiq #T410 LED ground lights shall be provided underneath the body, per NFPA requirements.

One (1) Work Light - (1) Engine Compartment, Whelen 5SCA0CCR, LED  
ENGINE COMPARTMENT WORK LIGHT Y\_\_N\_\_

One (1) Whelen model 5SCA0CCR LED engine compartment work light shall be provided and wired to illuminate automatically when the cab is tilted. The light shall also be wired through the engine compartment access door switch, providing illumination of fluid dip sticks and coolant overflow reservoir.

One (1) Cab Dome Lights - (4) Weldon #8068-6978-68, Red/Clear  
INTERIOR CAB DOME LIGHTS Y\_\_N\_\_

Four (4) Weldon 8086-6978-68 red/clear lights with push button shall be mounted in the cab ceiling. Two (2) in front (driver & officer) and two (2) in the crew cab. All lights shall be controlled by a switch by the lens.

- One (1) White Dome Light Activates with Automatic Door Switch Y\_\_N\_\_  
The white dome light activates with the automatic door switch.
- One (1) Map Light - Pivot/Swivel with Switch, Sunnex HS761-00 Y\_\_N\_\_  
MAP LIGHT  
A Sunnex model HS761-00 pivot and swivel map light with on/off switch, shall be located hanging from the overhead in Zone 7 within reach of the officer.
- Two (2) Cab Door Lights - (2) Whelen LINZ6A, LED, Amber, Chrome Flange Y\_\_N\_\_  
CAB DOOR INTERIOR LIGHTS  
**Four (4)** Whelen model LINZ6A, amber LED lights in chrome horizontal flanges shall be installed on the interior of the cab doors, **one (1) on each cab door**, above the door seal in the lower outboard corner.
- One (1) Handheld Spotlight - Mobile Patrol, #2150-1 (Ea) Y\_\_N\_\_  
HANDHELD SPOTLIGHT  
One (1) Mobile Patrol hand held spotlight, model #2150-1, shall be provided and **mounted on the left side of the tiller cab dash** using a bracket with Velcro strap that is painted black. The lights shall be hardwired.
- HAND LIGHTS  
Four (4) Streamlight Fire Vulcan® LED model 44451 rechargeable hand light(s) with quick release shoulder strap(s) shall be provided. The hand light shall be orange in color and feature a C4 LED primary bulb and two (2) blue LED taillights. The momentary toggle switch has 8 different modes of operation. A 12 volt DC direct wire charging rack shall be installed and wired to vehicle electrical system.
- Location of hand light's and charger/holders shall be located at the pre-construction meeting.**
- Two (2) Exterior Compartment Lights - (2) ROM LED Strips, Vertical Mount (Ea Pair) Y\_\_N\_\_  
EXTERIOR COMPARTMENT LIGHTS - (2) LED STRIP(S)  
Two (2) exterior compartment(s) shall have a ROM LED lighting strip installed on **both sides of the door in the tractor compartment and the compartments to the rear of the tiller wheel well**. The lighting strips shall be mounted vertically along both sides of the door framing in all specified body compartments. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door frame, shall be used to activate the lights.
- Four (4) Exterior Compartment Lights - (2) ROM LED Strips, Vertical Mount (Ea Pair) Y\_\_N\_\_  
EXTERIOR COMPARTMENT LIGHTS - (2) LED STRIPS  
Four (4) exterior compartments shall have a ROM LED lighting strip installed on both sides of the door. The lighting strips shall be mounted vertically along both sides of the door framing in all specified body compartments. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door frame, shall be used to activate the lights.

**The four (4) low side compartments, one (1) each side forward of the tiller axle and one (1) each side to the rear of the tiller axle receive LED lighting.**

One (1) Transverse Compartment Lights - (3) ROM LED Strip, Vertical Mount (Ea) Y\_\_N\_\_  
COMPARTMENT LIGHT

**The two (2) full height transverse compartments** shall have a ROM LED lighting strip installed on both sides of each door. The full height lighting strips shall be mounted vertically along both sides of each door framing in all specified body compartments. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in each door frame, shall be used to activate the lights nearest that door.

Three (3) Transverse Compartment Center Lights - (2) Weldon 2631-0000-30, LED (Ea) Y\_\_N\_\_  
COMPARTMENT LIGHTS

**The three (3) forward most transverse compartments** shall be provided with two (2) Weldon 2631-0000-30 LED lights installed in the transverse area of the compartment(s). Each light shall be mounted on a "hat" shaped metal bracket welded to the compartment ceiling to eliminate mounting holes through the top of the compartment. A switch, installed in each door frame, shall be used to activate the light nearest that door. Lights shall not have any other individual switch on the light base.

One (1) Lightbar - Whelen #F4N7VLED, 72", LED Y\_\_N\_\_  
LIGHTBAR

A Whelen model #F4N7VLED 72" Freedom™ IV Low Current Series Super-LED® lightbar shall be provided on the cab roof. The lightbar shall consist of four (4) Linear-LED® forward facing, and four (4) corner Linear-LED®, one (1) in each corner. All lights shall be red, except for two (2) on the front of the lightbar, which shall be clear. These clear lights shall be located one each side near the corner LED.

One (1) Beacons - (2) Whelen #B6MMRAP, Super-LED®, Red/Amber Y\_\_N\_\_  
UPPER REAR WARNING LIGHTS

Two (2) Whelen model B6MMRAP lights shall be provided on the upper rear of the apparatus. The upper level shall consist of a red Super-LED® rotator light. The lower level shall consist of an amber Linear Super-LED® light.

Sixteen (16) Perimeter - Whelen #M6RC Super-LED®, Red, with Clear Lens (Ea) Y\_\_N\_\_  
WARNING LIGHTS

Sixteen (16) Whelen model M6RC red Super-LED® light(s) with chrome plated flange(s) and clear lens(es) shall be provided on the apparatus. The flash pattern of the light(s) shall be Triple Flash, also known as Comet Flash.

One (1) Standard Perimeter Warning Light Locations - Custom Apparatus Y\_\_N\_\_  
 Location of each perimeter warning light shall be:

**Zone A Upper: One (1) Front light bars**

**Zone A lower: Four (4) Whelen M6RC Warning lights installed two (2) each side on the front of the cab**

**Zone B/D lower:** Two (2) Whelen M6RC Warning lights one (1) each side of the bumper  
Two (2) Whelen M6RC Warning lights one (1) each side of the cab  
Two (2) Whelen M6RC Warning lights one (1) each side of the trailer gooseneck  
Two (2) Whelen M6RC Warning Lights one (1) each side of the trailer to rear of the rearmost high side compartment.

Two (2) Whelen M6RC Warning Lights one (1) each side of the Trailerframe rails below the tiller cab

**Rear of trailer** Two (2) Whelen M6RC Warning Lights one (1) each side on the trailer below the taillight assemblies.

**Zone C upper:** Two (2) Whelen Rear beacons/LED Warning

**Zone C lower:** Two (2) Whelen M6RC Warning lights one (1) each side below the taillights

One (1) Traffic Adv - Whelen #TADP6, Super-LED®, 23.26" Y\_\_N\_\_  
TRAFFIC ADVISOR™

A Whelen TADP6, LINZ6™ Super-LED® Dominator™ Plus series Traffic Advisor™ shall be provided. The light bar shall be 23.26" long and have six (6) Super-LED® lamps. It shall be mounted in an extruded aluminum housing. The lights shall be controlled by a TADCTL1 controller mounted in the cab.

**The Traffic Advisor™ shall be [X ] wired through the Emergency Master [ ] wired battery switched.**

One (1) Traffic Arrow Control Head - Top Center Dash Mounted Y\_\_N\_\_  
The control head for the traffic arrow shall be mounted on the top center of the dash.

One (1) Installation - Traffic Advisor, Top of Body Y\_\_N\_\_  
The traffic advisor shall be mounted on top of the body, at the rear.

One (1) Lens Color - Clear Y\_\_N\_\_  
The **Roof Mounted Light bar** lens color shall be clear.

One (1) Electric horns - Dual Y\_\_N\_\_  
AUDIBLE WARNING DEVICES

Dual automotive electric horns controlled by the steering wheel horn button shall be provided.

- One (1) Backup Alarm - Federal Signal #252, 97DBA  
BACKUP ALARM Y\_\_N\_\_
- There shall be a Federal Signal #252 electronic alarm that sounds when the truck is placed in reverse. An 97 DBA audible intermittent "beep" shall be produced to warn persons near or on the truck.
- One (1) Tiller to Cab Buzzer - with Button, Each Location  
TWO-WAY TILLER TO CAB BUZZER SYSTEM Y\_\_N\_\_
- There shall be a two way signal and warning system provided to indicate truck movement as required by the NFPA. It shall consist of a buzzer mounted in the tractor cab that shall instruct the driver to go forward, backup or stop and a second buzzer located in the tiller cab to alert tillerman that the vehicle will be moving forward or backward. Buzzers shall be activated by a switch located in tractor cab and the "horn" button in the center of the tiller steering wheel. They shall be labeled: (1 - STOP) (2 - GO) (3 - BACKUP).
- The tillerman's buzzer button shall also be part of the engine starting system interlock that requires tillerman to be on board, i.e. he must activate buzzer to allow driver to release the **Maxi Parking Brake.**
- One (1) Air Horns - Dual, Grover  
DUAL AIR HORNS Y\_\_N\_\_
- Two (2) Grover 1510 chrome air horns shall be furnished. A pressure protection valve shall be installed in-line to prevent loss of all air from the vehicle air brake system.
- Air horns shall be located one (1) pair on the right side.**
- One (1) Air Horn Selector Switch  
AIR HORN SELECTOR SWITCH Y\_\_N\_\_
- An air/electric horn selector switch shall be provided which will allow either the electric or air horn to be actuated by the horn button on the steering wheel.
- One (1) Air Horn Emergency Master Switch (Requires INTELEX™ PLUS)  
AIR HORN EMERGENCY MASTER SWITCH Y\_\_N\_\_
- An air horn Emergency Master Switch shall be provided. When the Emergency Master switch is on, the horn ring shall sound the chassis air horn. When the Emergency Master switch is off, the steering wheel horn ring shall sound the electric horn.
- One (1) Air Horn Dual Lanyard  
AIR HORN DUAL LANYARD Y\_\_N\_\_
- The air horn(s) shall be activated by two lanyard pull cords, one for the officer and one for the driver, terminating into one control valve, located between the driver and officer.
- One (1) Electronic Siren - Whelen 295SLSA1, 100/200 Watts, Hardwired Microphone  
WHELEN SIREN Y\_\_N\_\_
- A Whelen model 295SLSA1 electronic siren shall be provided in the cab dash. The siren has a selectable output of 100 or 200 Watts. The microphone shall be hard-wired. The location of the Mic Clip shall be determined at the Pre-Construction Conference.

One (1) Install Siren Control Head in Overhead Console, Zone 5, RS of Center Panel Y\_\_N\_\_  
The electronic siren control head shall be recess mounted in the center overhead console, to the right of the center panel, (Zone 5).

One (1) Siren Speaker - Federal Signal #ES100, In Bumper (Ea) Y\_\_N\_\_  
SIREN SPEAKER

One (1) Federal Signal Model ES100 compact 100 watt speaker shall be provided and recess mounted in the **center** front bumper.

One (1) Mechanical Siren - Q2B®, Recessed in Bumper Y\_\_N\_\_  
MECHANICAL SIREN

A Federal Signal Model Q2B® siren with chrome plated housing shall be recessed mounted in the front bumper extension with front and vane grille exposed. There shall be an electric brake control installed in the cab, at the driver's switch panel, properly labeled.

**Mounting location shall be on the left side of the bumper, notched out and flush.**

One (1) Mechanical Q2B® Footswitch - Linemaster® #491 (Ea) Y\_\_N\_\_  
MECHANICAL Q2B® FOOTSWITCHES

One (1) Linemaster® Model 491 momentary foot operated switches to activate the mechanical Q2B® siren shall be installed on the toe board of the cab floor.

**The foot switch shall be located on both the officer and driver's side, by the feet.**

One (1) Warranty - David Clark Headsets & Cables, 1 Year Y\_\_N\_\_  
DAVID CLARK HEADSET WARRANTY

David Clark shall provide a 1 year warranty on its headsets and cables.

One (1) Warranty - David Clark Intercom Modules, 5 Years Y\_\_N\_\_  
DAVID CLARK INTERCOM WARRANTY

David Clark shall provide a 5 year warranty on its modules.

One (1) Tractor Mounting Substructure Y\_\_N\_\_  
TRACTOR MOUNTING SUBSTRUCTURE

The tractor body shall be mounted to the chassis frame with 6 heavy duty gusseted angle L-brackets (3 each side). The angle brackets shall be made from 3" x 3" x 0.25" horizontal angles and 3" x 5# vertical channel welded in an "L" shape. These angle brackets shall also serve to support the running boards on each side of the vehicle. The rear fender areas shall be supported by a 3" x 5 lb. "C" channel assembly that shall be bolted to the chassis frame (1 each side). The front fender area shall be supported by a 3" x 5 lb. channel that is fully transverse from driver's to officer's side and bolted to a chassis cross member. In addition, the compartment behind the cab shall be supported by (4) 0.38" formed steel brackets (1 in each corner of the compartment) and bolted directly to the chassis frame.

One (1) Tractor Inner Liners - Rear, Aluminum Y\_\_N\_\_  
TRACTOR REAR ALUMINUM INNER LINERS

Full semi-circular inner liners shall be provided in each wheel housing. They shall be constructed of aluminum and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The bottom edge of liner shall be reinforced along its full length, however, it shall not have a formed reinforcement flange to avoid trapping dirt and debris.

One (1) Tractor Fenderettes - Rear, Rubber Y\_\_N\_\_  
TRACTOR REAR FENDERETTES

Black rubber fenderettes shall be installed in the rear tractor fender compartment wheel openings. They shall be sufficiently wide to completely cover the outside rear tire and reduce wheel splash along the sides of the tractor and trailer. They shall be installed with ¼” hex head bolts (self-tapping sheet metal screws are not acceptable). There shall be a stainless steel backing strip between the rubber and the mounting flange to add support. The fenderettes shall each incorporate a vertical flange to cover the area where the body side and wheel opening mounting surface meet. The fenderettes shall be a minimum of 3/16” thick, have a mold-formed outer radius and a rounded bead at the wheel opening edge.

One (1) Tractor Fenders - Rear, Painted Y\_\_N\_\_  
TRACTOR REAR FENDERS

Rear tractor fenders assemblies shall be fabricated of heavy duty 3CR12 stainless steel. The front and rear top of the fender shall have large “mitered” corners. The top and forward face of the fender shall have a 1/8” aluminum treadplate overlay. The outward, side face shall be painted to match job color.

One (1) Tractor Running Board - LS Only, 3/16" ATP Y\_\_N\_\_  
RUNNING BOARD

A running board shall be installed on the left side of the tractor. The running board shall be fabricated of 3/16" aluminum tread plate and supported by structural steel angle assemblies bolted to the chassis frame. It shall be approximately 7.50" deep and shall be spaced 1/2" away from rear fender and side apron. The running board shall serve as steps for access to the turntable platform and shall also act as rub rails to protect the tractor mounted compartments from damage.

An aluminum tread plate skirt shall be installed over the exhaust on the right side of the tractor. A step and handrail shall also be installed to ease access to the turntable.

One (1) Tractor Compartment - 37", for Generator, Roll-up Doors Y\_\_N\_\_  
TRACTOR COMPARTMENT - WITH ACCOMMODATIONS FOR A GENERATOR

Two (2) compartments with exterior dimensions of 37" wide x 40" high x 20" deep shall be mounted to the tractor directly behind the cab, one on each side. The enclosed center area between the compartments shall be provided with a rear-facing removable ventilated panel and a lift up cover on the top to accommodate a generator. The forward, top and rearward exterior surfaces of the compartments shall be covered with aluminum tread

plate. Aluminum shutter type roll-up doors shall be provided on each side.

One (1) Tractor Side Apron - ATP, LS Y\_\_N\_\_  
There shall be an aluminum tread plate side apron on the left side of the tractor. Side apron shall be constructed of .125" aluminum tread plate to provide kick plate behind the running board and shall be removable to provide for complete access to fuel and hydraulic tanks for service.

One (1) Tractor Side Apron - ATP, RS Y\_\_N\_\_  
There shall be an aluminum tread plate side apron on the right side of the tractor. Side apron shall be constructed of .125" aluminum tread plate to provide kick plate behind the running board and shall be removable to provide for complete access to fuel and hydraulic tanks for service.

One (1) Tractor Tool Box - without Gooseneck Waterway Inlets Elbows Y\_\_N\_\_  
TOOL BOX  
A 14" wide x 15" high x 52" long tool box with lift-up door, constructed of .125" aluminum tread plate shall be transverse mounted on the tractor platform so as to serve as a step for access to the aerial turntable.

One (1) Tractor Handrails - (2), 24", Al, Knurled, Rear Face of Tractor Compartment Y\_\_N\_\_  
HANDRAILS  
A 24" shall be installed on each side of the tractor, on the rearward face of the tractor compartment. Handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

One (1) Trailer Fenders - Front, Painted, for TDA with A-Frame Outrigger Y\_\_N\_\_  
TRAILER FRONT FENDERS  
Streamlined front trailer fenders shall be provided. They shall be fabricated of 2.5mm 3CR12 stainless steel. The top of the front fender shall be covered with aluminum tread plate. No exception. The outward, side face of the fender shall be painted job color. The front trailer fenders shall house the "A" frame hydraulic jacks.

One (1) Trailer Body Construction - TDA, S/S Y\_\_N\_\_  
TRAILER BODY CONSTRUCTION  
The body and compartments shall be a modular design and construction, made of heavy duty 3CR12 stainless steel. The compartment floors shall be integral with the compartment and shall be constructed of 2.5 mm 3CR12 stainless steel. Compartments shall be the "sweep out" design with the floor higher than the door sill. All compartment seams shall be caulked with gray adhesive/sealant. Each non-transverse compartment or each side of a transverse compartment shall be rated for 500 pounds of storage.

A bright aluminum tread plate cover shall be installed over the side compartments. Side edges of cover shall have a 45 degree outward bend to provide drip protection over any compartment doors which are immediately below. The rear vertical trailer faces shall also be covered with aluminum tread plate. All tread plate shall be secured with threaded fasteners.

All body components that are covered with aluminum tread plate shall be coated with an anti-corrosive and rust preventative prior to installation. There shall be a coat of an anti-

corrosive and rust preventative undercoating placed between any steel and aluminum mating surfaces to isolate the dissimilar metals.

NOTE: Some compartment dimensions may be reduced by customer selected, frame mounted chassis options or small construction details.

One (1)

Body Mounting Substructure for TDA Trailer  
TRAILER BODY MOUNTING SUBSTRUCTURE

Y\_\_\_N\_\_\_

The trailer body shall be supported by 3" x 2" x 0.50" structural angles that shall be welded to the chassis frame (4 angles per each segment of the body). These chassis angles shall be bolted through the lower transverse area of each body compartment into a 3" x 2" x 0.25" angle that is fully transverse and welded into the body assembly (1 body angle at the front and rear of each transverse area). For the compartment behind the rear trailer axle, the same method of mounting shall be used when this compartment is fully transverse. In the instance when this rear compartment is not transverse, the individual compartments shall be supported by heavy 3" x 6 lb. gusseted channel brackets (2 per compartment) that are bolted to the chassis frame.

One (1)

Trailer Compts - 250#/250#HR, w/o Tele W-way, A Frame, Roll-Up Doors  
COMPARTMENTATION

Y\_\_\_N\_\_\_

The compartmentation shall consist of the following:

Two (2) compartments, one on each side of the trailer, in the trailer gooseneck area immediately to the rear of each "A" frame ground jack. Each compartment shall be 16.5" wide x 24" high x 26" deep and shall include a vertically hinged stainless steel door. The gooseneck compartment doors only are to be lap type, double panel construction with two (2) "Z" shaped support rails placed between the panels to stiffen and reinforce the door. The doors shall be weather stripped with an automotive bulb type extruded rubber inner seal. A second outer seal of closed cell rubber shall be placed on the lap edge of the door to prevent damage to the paint finish. The doors shall be mounted on stainless steel piano hinges, bolted to the door framing with 1/4", stainless steel, Phillips oven head bolts. Doors mounted with self-tapping sheet metal screws are not acceptable. Eberhard 206 latches with stainless steel "D" ring handles shall be provided. Isolation tape shall be furnished between the door hinge and door jamb. A rubber gasket shall be provided between the "D" ring handle and the door. All vertical hinged doors shall be provided with stainless steel double spring door stays.

One (1)

Stokes Basket Compartment Aluminum Tread Plate

Y\_\_\_N\_\_\_

STOKES BASKET STORAGE BOX VERTICAL

**An aluminum tread plate storage box for a Fire Department furnished stokes basket shall be installed on the trailer deck in front of the first transverse high side compartment. The storage box shall have (2) vertical doors, (1) on each end. The box shall measure approximately 96.00" across x 25.00" wide x 13.50" tall.**

Four (4) full height transverse compartments behind the above compartments, two on each side of the trailer. Each compartment interior shall be 45.75" wide x 54.25" high. A roll-up door shall be provided for each compartment door opening. The upper 28" and the lowest 12" of the compartments shall be a full 92" deep inside of the doors. The center section of the compartment, where the completely enclosed trailer frame passes through, shall be 25" deep.

Two (2) low compartments behind the two forward full height compartments, one on each side of the trailer. Each compartment interior shall be 45.75" wide x 24.25" high. A roll-up door shall be provided for each compartment door opening. The upper portion of the compartment shall be 25" deep with the lower 12" open from side to side.

Two (2) low compartments shall be provided just ahead of the tiller axle, one on each side of the trailer. Each compartment interior shall be 45.75" wide x 24.25" high. A roll-up door shall be provided for each compartment door opening. The upper portion of the compartments shall be 19" deep on the left side of the trailer and 25" deep on the right side, with the lower 12" of the compartments varying in depths: the forward 29.75" shall be open through from side to side, while the rear 15" of the compartments shall be 20" deep on the left side and 48" deep on the right side of the trailer.

In the lower transverse section at the centerline of the compartments there shall be a .19" wide x 46" long drain. The compartments shall be bolted to the trailer frame with 3"x 2" angle brackets. A minimum of two flex joints shall be provided to allow proper flexing of the trailer body

One (1) Vents - Trailer Compartments (TDA) Y\_\_N\_\_  
VENTS

Compartment vents shall be provided to meet the requirements of NFPA 1901, current edition.

One (1) Trailer Inner Liners - Rear, Aluminum Y\_\_N\_\_  
TRAILER REAR ALUMINUM INNER LINERS

Full semi-circular inner liners shall be provided in each wheel housing. They shall be constructed of aluminum and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The bottom edge of liner shall be reinforced along its full length, however, it shall not have a formed reinforcement flange to avoid trapping dirt and debris.

One (1) Trailer Fenderettes - Rear, S/S Y\_\_N\_\_  
TRAILER REAR FENDERETTE

Polished stainless steel fenderettes shall be installed on the rear wheel openings. The fenders shall be wide enough to completely cover the outside rear tire and reduce wheel splash up the sides of the body. They shall be installed with 1/4" hex head bolts, self-tapping sheet metal screws are not acceptable. A full width rubber welt shall be placed between the fenderette and body wheel well opening flange. The outside edge of the welting shall form a "V" bead between the fender and the body side face to prevent moisture from entering. The inside edge shall also have a small raised bead. The outside edge of fenderette, at the wheel opening, shall be rolled inward to eliminate any sharp edges and avoid injury when cleaning the apparatus.

One (1) Trailer Fenders - Rear, S/S, Painted without Overlay Y\_\_N\_\_  
TRAILER REAR FENDERS

Streamlined rear trailer fenders shall be provided. They shall be fabricated of 2.5mm 3CR12 stainless steel and painted to match job color.

One (1) Trailer Compartments - 54", Low, behind Axle, Roll-up Y\_\_N\_\_

TRAILER COMPARTMENTS - BEHIND TILLER AXLE

One (1) transverse style compartment shall be provided immediately behind the tiller axle, 54" wide x 24.5" high. The upper portion shall be 22" deep. The lower 12.25" shall extend under the frame rails and shall be open from side to side. Each compartment opening shall have an aluminum shutter type roll-up door.

One (1) Ladder Enclosure Side Panels - 2 Modules Long, ATP Y\_\_N\_\_

SIDE PANELS

Aluminum tread plate side panels shall be provided on each side of the trailer above each low compartment module, above the fender, and to the rear, to protect the ground ladders from the elements and provide a more pleasing appearance.

One (1) Deck over Ground Ladders - .1875" ATP Y\_\_N\_\_

ALUMINUM TREADPLATE DECKING

A .1875" thick aluminum tread plate deck shall be provided over the ground ladder arches to protect the ladders and provide a walking surface along each side of the aerial ladder when it is in the bedded position.

One (1) Door - for Rear Frame Rail Area (RR1), Smooth Aluminum for Chevron Y\_\_N\_\_

REAR DOOR

There shall be a drop down door with D-ring 2 point positive lock, covering the opening of the rear frame rail area. The door shall be constructed of smooth aluminum in preparation for the installation of reflective chevron striping.

One (1) Rear Frame Rail Area (RR1) - Compartment for ceiling hooks Y\_\_N\_\_

FRAME COMPARTMENT

There shall be an enclosed, weather-tight compartment installed at the rear of the trailer just below the ground ladder compartment, between the frame rails. The maximum size of the compartment is 28" wide x 11" high x 77" long.

One (1) Tiller Access Ladder - Curb and Street Side Y\_\_N\_\_

ACCESS LADDERS

Two (2) tiller access ladders shall be provided; one on the curb side and one on the street side of the tiller cab. Each ladder shall be constructed of two (2) aluminum side rails with aluminum Grip Strut® steps. Each ladder shall be sloped inward a minimum of 6 degrees for easier access to the tiller cab. The ladders shall be bolted to the body for easy replacement if damaged.

Two (2) Tiller Access Ladder Handrails - Aluminum, Knurled (Ea) Y\_\_N\_\_

HANDRAILS

A set of handrails shall be provided for the **two (2)** access ladder(s) to the tiller cab. A set of handrails shall consist of a "swimming pool" style handrails and a 27" straight handrail.

The vertically mounted "swimming pool" style handrail shall be installed on the rearward side of the access ladder to tiller. The handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

The 27" handrail shall be provided on the forward beam of each tiller access ladder, opposite to the swimming pool style handrail.

One (1) Rear Step - Rear TDA, .1875" ATP Y\_\_N\_\_  
REAR ACCESS LADDER SUPPORT STEP

A cross step shall be provided on the back of the trailer body, recessed under the ladder banking. The step shall be constructed of .1875" thick aluminum tread plate and supported by a channel assembly that is bolted to the trailer chassis frame. The step shall be 30" deep x 96" wide and shall be spaced 0.50" off the back of the body to allow proper drainage. The tiller access ladder(s) shall be supported by this step and the step may serve as one of the steps of the access ladder(s). The lower DOT required marker lights and reflectors shall also be installed on this step.

One (1) Compartment Doors - Roll-up Type - R.O.M. (TDA) Y\_\_N\_\_  
COMPARTMENT DOORS

R.O.M. / Robinson aluminum shutter roll-up type doors made in the U.S.A. shall be provided for the above compartments unless otherwise stated. A magnetic door ajar and compartment light system designed within the door to conceal moving parts and prevent parts exposure in the compartment shall be provided. Slats shall be double-wall box frame extrusion and must be anodized to eliminate oxidation and rusting. Exterior surface shall be flat and interior surface to be concave to help loose equipment from jamming the door. The latch system shall be a full width, one piece, lift bar, enabling operation with one hand. Manufacturer's standard door frame design may be altered or modified to accommodate the roll-up doors.

One (1) Roll-up Doors - Satin Finish Y\_\_N\_\_  
ROLL-UP DOOR FINISH

The roll-up doors(s) shall have a satin finish.

One (1) Keyed Locks - NONE Y\_\_N\_\_

One (1) Trailer Door Hinges - Polished Finish, Roll-up Door Body with Some Hinged Doors Y\_\_N\_\_  
TRAILER DOOR HINGES

All piano hinges on the trailer doors shall be polished.

One (1) Tiller Cab - 100 Ft. Trailer, S/S Y\_\_N\_\_  
TILLER CAB

A permanently mounted, fully enclosed tiller cab shall be provided, mounted to the rear of the trailer behind the aerial ladder. The tiller cab shall be 70.50" from the rear axle center line to the front skin of the tiller cab. The cab shall have a tubular stainless steel framework with stainless steel skin. The tiller cab shall have a minimum width of 36" and a minimum height of 54". The vehicle overall height at the tiller cab shall be 135". The

floor of the cab shall be aluminum treadplate with a forward area angled up to provide foot support for the tillerman.

The windshield shall consist of a flat piece of tinted automotive laminated safety glass, 31” wide by 24” high. The windshield shall be installed and held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. Non-opening, vent-style windows shall be provided on each side of the cab, forward of the doors, to increase the tillerman's field of vision. The tiller cab shall be finish painted prior to windshield glass being installed.

The rear cab window shall be a minimum of 29” wide by 19” high and shall be a tinted, tempered, double slide type window. An open/close vent shall be located on the rear cab panel below the rear cab window.

Two (2) bi-fold doors with side windows shall be provided, one each side of the tiller cab. The doors shall be mounted on slides, top and bottom, and shall slide open towards the rear of the apparatus. The bi-fold doors shall be lockable in either the open or closed position. When locked in the open position, a minimum door opening width of 21.5” shall be provided for easy entrance into the cab.

There shall be a switch installed in each door that shall be integrated with the door ajar/hazard warning system. The “Do Not Move Apparatus” light in the cab shall activate when a tiller cab door is open. A momentary disable switch shall be provided between the driver and officer that is monitored by the Info II Center. The momentary switch shall disable the “open door” alarm, which shall not “reset” until the vehicle is re-started. Activation of the disable switch shall be recorded in the data logger.

One (1)      Tiller Roof - ATP      Y\_\_N\_\_  
TILLER CAB ROOF

The tiller cab roof shall be covered with aluminum tread plate.

One (1)      Tiller Door Windows - Sliding Glass      Y\_\_N\_\_  
TILLER DOOR WINDOWS

Sliding glass windows shall be provided in the tiller cab doors.

One (1)      Tiller Side Windows - Lower Front Corners      Y\_\_N\_\_  
SIDE WINDOWS

A window shall be installed on each side of the tiller cab in the lower forward corner panels.

One (1)      Tiller Cab Windshield Wiper      Y\_\_N\_\_  
WINDSHIELD WIPER

One windshield wiper shall be installed above the front windshield. It shall be a two speed electric with automatic park position and intermittent wiping feature. The wiper shall be controlled by a knob type switch that combines the off/intermittent/low/high selection and washer functions in one control. Turning the switch shall activate the wipers and control the speed. Pushing the switch shall operate the washer nozzle, which shall be installed

below the front windshield.

A two (2) quart windshield washer reservoir shall be located in the kick plate of the tiller cab and shall be accessed from the inside of the cab.

One (1) Tiller Mirrors - (2) Velvac 704325 Flat, Heated  
TILLER MIRRORS Y\_\_N\_\_

A Velvac #704325, 6.5" x 10" flat glass mirror shall be installed on each side **outside** of the tiller cab. It shall be heated and the switch shall be located on the inside of the tiller cab.

One (1) Tiller Driving Lights - (2) Truck-Lite #80396, Switch on Dash  
TILLER DRIVING LIGHTS Y\_\_N\_\_

Rectangular rubber mounted tiller driving lights shall be provided, one (1) each side mounted ahead of tiller wheels below the compartments. Lights shall be Truck-Lite #80396 with clear halogen bulbs. Lights to be controlled by rocker switch located on the tiller cab dash. **(If at all possible should be mounted recessed in trailer body)**

One (1) Tiller Cab Handrails - (2), 45", Aluminum, Knurled, Vertical, Forward of Door  
TILLER CAB HANDRAIL Y\_\_N\_\_

A 45" knurled aluminum handrail shall be vertically mounted in front of the tiller cab access door on each side of the tiller cab.

One (1) Tiller Cab Interior Decor - Gray  
TILLER CAB INTERIOR DECOR Y\_\_N\_\_

The following tiller cab components shall be gray in color:

Headliner

Vinyl visors, if selecting vinyl

The following tiller cab components shall always be black in color:

Seat risers

Headliner trim

Electrical panels

Heater components

Seat belt retractor covers

Rubber covered grab handles, if present

Plastic snap plugs for wire access holes

One (1) Tiller Cab Ceiling - Painted without Headliner  
TILLER CAB CEILING PAINTED Y\_\_N\_\_

The ceiling of the tiller cab shall be painted the same color as the walls.

One (1) Tiller Cab Dome Light - (1) Whelen 60CREGCS, Red/Clear  
INTERIOR CAB DOME LIGHT Y\_\_N\_\_

One (1) Whelen model 60CREGCS red/clear lights with push button shall be mounted in the cab ceiling **just forward of the center line of the tiller seat**. The light shall be controlled with a switch by the lens.

One (1)	<p>Tiller Cab Sun Visor - (1) Vinyl, Padded  <u>SUN VISOR</u></p> <p>One (1) approximately 8" x 28" padded sun visor shall be provided for the front windshield of the tiller cab. The visor shall be supported at both ends to prevent drooping.</p>	Y__N__
One (1)	<p>Tiller Steering Wheel - Tilt, Telescoping  <u>TILLER STEERING WHEEL AND COLUMN</u></p> <p>The upper steering column shall tilt and telescope. The steering wheel shall be 18" in diameter.</p>	Y__N__
One (1)	<p>Tiller Cab Dash &amp; Instruments  <u>TILLER CAB DASH AND INSTRUMENTS</u></p> <p>The tiller cab dash shall be horizontal, constructed of 3CR12 stainless steel and painted to match the tiller cab interior. A non-glare switch panel, custom designed to accommodate the appropriate functions, shall be provided. Rocker style switches with integral indicator lights shall be provided to advise that the switch has been energized. The panel shall be back lit with a dimmer switch for night operations.</p> <p>The following instrumentation shall be provided on the dash:</p> <ul style="list-style-type: none"> <li>- Green turn signal indicator lights.</li> <li>- A two-way signal buzzer system from the tiller cab to the tractor cab, with the buzzer button mounted in the center of the steering wheel, interlocked for engine starting.</li> <li>- An audible and visual warning system to warn both the front cab and tiller driver when the maximum allowable jackknife position approaches.</li> </ul>	Y__N__
One (1)	<p>Tiller Cab Door Switches - Automatic, Dome Light  <u>AUTOMATIC DOOR SWITCHES</u></p> <p>Automatic door switches shall be provided for the tiller <b>clear</b> cab dome light.</p>	Y__N__
One (1)	<p>Tiller Cab Heater - 7000 BTU, Diesel, Use When No Waterway is Present  <u>TILLER CAB HEATER</u></p> <p>A diesel fueled tiller cab heater with adjustable controls shall be provided. The heat output shall range from 3100 to 7000 BTU's. One heater outlet shall be provided for the windshield and one outlet shall be provided for the cab floor. To maximize efficiency, the heater shall draw air from the interior of the tiller cab. Fresh air shall be introduced into the cab via the cab vent. In-line between the fuel tank and the tiller diesel heater shall be an electric fuel pump, complete with check valve and shutoff valve. An informational label stating "RUN HEATER CONTINUOUSLY FOR 20 MINUTES EVERY MONTH" shall be provided.</p>	Y__N__
One (1)	<p>Tiller Heater Fuel Tank - Front of Tiller Cab (Not Avail. with any Waterway)  <u>HEATER FUEL TANK LOCATION</u></p> <p>Installed at the base of the front face of the tiller cab shall be a separate polyurethane diesel fuel tank.</p>	Y__N__
One (1)	<p>Tiller Cab Defroster Fan - Left Side  <u>TILLER CAB DEFROSTER FAN</u></p>	Y__N__

One (1) adjustable 6" defroster fan shall be provided for the left side of the tiller cab windshield. The fan shall have a two (2) speed control on the mounting pedestal.

One (1) Tiller Seat - H.O. Bostrom, Sierra Fixed High Back  
TILLERMAN'S SEAT Y\_\_N\_\_

The tillerman's seat shall be an H.O. Bostrom Sierra FX series non-reclining high back seat. This seat shall have 5" of fore and aft adjustment.

One (1) Tiller Seat Belt - 3 Point, Fixed  
TILLER SEAT BELT Y\_\_N\_\_

The tiller seat shall have a 3-point fixed D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

One (1) Tiller Seat & Window Guard  
TILLER SEAT & WINDOW GUARD Y\_\_N\_\_

A metal bar shall be installed across the rear window which shall protect the seat and the window when the seat is moved fully rearward.

One (1) Air Bottle Compts - (4) Bottles in Tiller Wheel Well, Round (Poly)  
AIR BOTTLE COOMPARTMENTS Y\_\_N\_\_

There shall be four (4) wheel well enclosures provided to accommodate four (4) air bottles. The single round air bottle compartments shall be located, two (2) each side, with one (1) before and one (1) aft of the rear axle. The compartments shall be fabricated of high impact polyethylene material. They shall be a minimum of 26.00" usable depth, and an 8.00" inside diameter.

Four (4) Air Bottle Compartment Door - High Polished with Push Button Lever Latch (Ea)  
AIR BOTTLE COMPARTMENT DOOR(S) Y\_\_N\_\_

Four (4) compartment door(s) shall be constructed of 12 gauge high polished stainless steel secured by a full length stainless steel hinge and a push button lever latch.

Fourteen (14) Adjustable Shelves - Open Corner, S/S (Ea)  
ADJUSTABLE SHELVES Y\_\_N\_\_

Fourteen (14) adjustable shelves (with open corners) made from 12 gauge 304 stainless steel shall be provided in the body compartment. Each shelf shall be supported by four (4) stainless steel angles bolted to Aluma-Strut tracks for adjustability.

**Location of the shelves shall be to be determined at the Engineering Conference.**

Four (4) Roll Out Tray - in Compartment, 500#, Adjustable, S/S (Ea)  
ROLL OUT TRAYS Y\_\_N\_\_

Four (4) roll out trays constructed of 12 gauge 304 stainless steel shall be provided in the body compartments. Each tray shall have edges on all four sides for added strength and be mounted on heavy duty rollers able to support a 500 lbs. load. Corners shall be open. Trays shall extend 70% of the slide length and shall be vertically adjustable on Aluma-

Strut attached to the side walls of the compartment.

**Location of the trays shall be determined at the Engineering Conference.**

Four (4) Roll Out Tray - in Compartment, 500#, Floor Mount, S/S (Ea) Y\_\_N\_\_  
ROLL OUT TRAYS

Four (4) roll out trays constructed of 12 gauge 304 stainless steel shall be provided in the body compartments. Each tray shall have edges on all four sides for added strength and be mounted on heavy duty rollers able to support a 500 lbs. load. Corners shall be open. Trays shall extend 70% of the slide length and shall be bolted to the compartment floor.

**Location of the trays shall be determined at the Engineering Conference.**

Four (4) SlideMaster HSL Spring Lock (Ea) Y\_\_N\_\_  
Four (4) Trays shall have SlideMaster HSL 2 Rail spring locks.

Four (4) SlideMaster HSL Spring Lock (Ea) Y\_\_N\_\_  
Four (4) Trays shall have SlideMaster HSL 2 Rail spring locks.

Twelve (12) Rub Rail, Body Sides - Black Poly Y\_\_N\_\_  
RUB RAIL - BODY SIDES

Black poly rub rails shall be provided along the lower portion of the body, beneath the compartment doors, on each side to prevent damage to the body and finish. The rub rails shall be a minimum of 2-3/8" wide x 1" deep, and shall be mounted on rubber supports. The rub rails shall have a 1" x 1" chamfer at the front and rear of the rails. The rails shall protrude 1.53" from the face of the body.

One (1) Finish - Tractor Compartment Interior, Gray Zolatone Paint (Ea Compt) Y\_\_N\_\_  
FINISH - TRACTOR COMPARTMENT INTERIOR(S)

One (1) tractor compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

One (1) Finish - Trailer Compartment Interior, Mill Finish (Ea Compt) Y\_\_N\_\_  
FINISH - TRAILER COMPARTMENT INTERIOR(S)

One (1) trailer compartment interior(s) shall have no finish applied.

Twelve (12) Finish - Trailer Compartment Interior, Gray Zolatone Paint (Ea Compt) Y\_\_N\_\_  
FINISH - TRAILER COMPARTMENT INTERIOR(S)

Twelve (12) trailer compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

Fourteen (14) Finish - Adjustable Shelf, DA outside Edge (Ea) Y\_\_N\_\_  
FINISH - ADJUSTABLE SHELF (OR SHELVES)

Fourteen (14) adjustable shelf (or shelves) shall have a DA finish on the outside edge of the shelf.

Four (4) Finish - Roll Out Tray, DA outside Edge (Ea) Y\_\_N\_\_  
FINISH - ROLL OUT TRAY(S)

Four (4) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

Four (4) Finish - Roll Out Tray, DA outside Edge (Ea) Y\_\_N\_\_  
FINISH - ROLL OUT TRAY(S)

Four (4) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

One (1) Aerial Ladder Design and Performance (100/250 TDA) Y\_\_N\_\_  
AERIAL LADDER DESIGN AND PERFORMANCE

A 100 foot, 250 lb. tip load telescoping steel aerial ladder shall be mounted on the apparatus. The ladder structure shall be of an open truss design and shall meet or exceed the requirements of all applicable sections of the current edition of NFPA 1901. The aerial ladder and turntable design shall provide continuous egress for civilians and firefighters through any angle of elevation to the ground as defined by NFPA 1901.

The ladder shall be designed with a structural safety factor of two-to-one (2:1) based on the dead and live loads and shall meet ANSI A92.2 Standard for Vehicle Mounted Aerial Devices and NFPA 1901 which requires a static stability safety factor of one and one half to one (1.5:1) based on the rated load. These capabilities shall be established in the unsupported configuration.

The aerial device and all supporting structure shall be third party tested to confirm that the aerial meets the original design criteria and the intent of the latest recommended NFPA standard for aerial devices. Such testing shall include the use of brittle lacquer stress coating to identify all stress concentrations, followed by strain gauging to verify that all nominal stresses and stress concentrations have a safety factor that is equal to or greater than 2:1 based on the dead and live load.

The aerial ladder shall be comprised of four (4) sections and extend to a nominal working height of 100 feet above the ground as measured by NFPA 1901 recommendations. The aerial ladder shall have a rated horizontal reach of 91 feet measured in the horizontal plane at zero (0) degrees from the centerline of the turntable rotation, as defined by NFPA 1901. The aerial ladder shall be capable of continuous operation through 360 degrees of rotation and from minus five (-5) degrees to plus eighty (+80) degrees elevation.

One (1) Aerial Ladder Certified Rated Capacity (250#) Y\_\_N\_\_  
AERIAL LADDER CERTIFIED RATED CAPACITY

The rated capacity of the aerial ladder, with the ladder below 45 degrees elevation, shall be based on a 250 pound tip load or a maximum flow of 1000 GPM of water. With the ladder above 45 degrees, the capacity shall be based on a 250 pound tip load while flowing a maximum of 1000 GPM of water, in accordance with NFPA 1901, current edition. There shall be no nozzle orientation restrictions while flowing 1000 GPM of water.

All aerial ladder certifications shall be based on the ladder being properly deployed in an unsupported configuration. The capacities shall be based upon 360 degree rotation, up to full extension, and from -5 degrees to + 80 degrees.

One (1) Operation on Grades (Rated Capacity @ 5 Degrees Off Level) Y\_\_N\_\_  
OPERATION ON GRADES

The aerial is capable of being operated at full rated capacity in every position in which the aerial device can be placed when the apparatus is on a slope of 5 degrees (8.7%) in accordance with NFPA 1901 (19.21.3.1)

One (1)

Outriggers - A-Frame (250#/250#HR TDA-Waterway Restrictions, See Eng Note  
OUTRIGGERS

Y\_\_N\_\_

Outrigger jacks shall be "A" frame type and fully capable of retraction on any angle without undue binding. The cylinders shall be equipped with integral (on the cylinder) holding valves which shall hold it either in the stowed position or the working position should a pressurized hydraulic line be severed at any point within the system.

(Or approved Reading Fire Dept. equivalent)

The jacks shall be fitted with swivel base pads with a ground contact area of 132 square inches minimum. Ground jack spread shall be a maximum of 150 inches.

Maximum ground jack spread considered shall be 174 inches (WITH FULL ROTATION)

One (1)

Outrigger Controls - for A-Frame, **(3 Controls) one each Side,** (250#/250#HR TDA)  
OUTRIGGER CONTROLS **one at turn table control area**

Y\_\_N\_\_

An electric outrigger control for each outrigger shall be provided on both sides of the trailer frame near the outriggers. The controls shall be in an enclosed compartment with a drop-down door having a trigger latch. The outrigger controls on the officer's side shall be on a fixed panel. The controls on the driver's side shall be on a hinged panel which opens up for access to the manual override. An automatic high idle switch and indicator shall be provided so that automatic engine RPM ramp up from hydraulic requests can be disabled.

(Or approved Reading Fire Dept. equivalent)

One additional outrigger control for each outrigger shall be provided at the turntable control area.

An electric safety diverter valve shall also be provided in conjunction with the outrigger controls. The diverter valve shall allow the hydraulic fluid to flow either to the outrigger hydraulic circuit or the turntable and aerial circuit but not simultaneously. The valve shall be located on the driver's side of the trailer.

A bubble type level shall be furnished to aid in leveling the unit side to side. Each outrigger shall have an indicator light that illuminates when proper ground jack placement has been achieved.

One (1)

Outrigger Alarm  
OUTRIGGER ALARM

Y\_\_N\_\_

An automatic electronic warning device (horn) shall be provided to warn personnel when the outriggers leave their nested position. Alarm shall operate only when outriggers are moving.

One (1)

Outrigger Lighting for (2) A-Frame Outriggers  
OUTRIGGER LIGHTING

Y\_\_N\_\_

Two (2) red flashing lights shall be mounted, one (1) on each side adjacent to each outrigger.

White LED light angled downward located at outrigger to assist in location of outriggers for set up. One (1) each side (**Switch controlled from tiller cab with driving lights**)

All flashing lights shall be automatically activated if any outrigger leaves its nested position and shall not be switched off until all ground jacks are once again in their stowed position.

One (1)      Outrigger Pads and Brackets - (2) Steel, 250#/250# High Rail TDA      Y\_\_N\_\_  
OUTRIGGER PADS AND BRACKETS

A set of two (2) auxiliary outrigger pads shall be installed on the apparatus. The pads shall be 18" x 18" and shall be made of ¼" steel with a carrying handle. There shall be one (1) pad bracketed to the underside of the body just forward of each rear axle.

One (1)      Ladder Cradle - Wear Strips Attached to Aerial Base Section      Y\_\_N\_\_  
LADDER CRADLE

A heavy-duty rest shall be provided to support the aerial in the travel position. Wear strips shall be attached to the aerial base section to protect the aerial when the unit is in the travel position. The cradle pivots to conform to the nested ladder, providing support over the full width of the cradle.

One (1)      Ladder Cradle Interlocks      Y\_\_N\_\_  
LADDER CRADLE INTERLOCK SYSTEM

A ladder cradle interlock system shall be provided which automatically prevents the operator from lifting the aerial device from the cradle unless all outriggers are fully extended and placed in a load supporting configuration. An additional interlock shall be provided that prevents outrigger operation when the aerial device is not fully stowed in the cradle.

One (1)      Manual Overrides - TDA      Y\_\_N\_\_  
MANUAL OVERRIDES

The manual overrides for the aerial device (clockwise and counterclockwise rotation and ladder lowering interlocks) shall be in the turntable control pedestal. Operation of the ladder without the outriggers properly set requires the operation of a diverter valve and requires a second operator. The overrides for the outriggers shall be conveniently located at the side of the trailer fender, behind the jack control panel. The outrigger overrides can be operated by one person, but requires the simultaneous activation of two separate controls to override any safety system.

One (1)      Aerial Hydraulics System - TDA      Y\_\_N\_\_  
AERIAL HYDRAULIC SYSTEM

#### HOSE

High pressure hydraulic hose used for the circuits of the hydraulic system shall have a minimum burst strength of four (4) times operating pressure.

#### FILTER

An easily accessible 6 micron replaceable filter, with remote filter condition indicator, shall be installed in the hydraulic pressure line. A 10 micron return filter shall be installed in the reservoir.

## RESERVOIR

The hydraulic oil tank shall have sufficient capacity to operate the aerial while allowing the oil to cool and shall be located behind the tractor 5th wheel and between the frame rails. There shall be a means provided to remove the tank, if needed. The connection points to the tank shall be easily accessible, with internal baffles separating the intake and return. There shall be shut-off valves at these points to isolate the tank, if needed. A filtered breather cap and a basket strainer shall be located in the filler neck. A dip stick shall verify the oil level. There shall be a plaque mounted next to the fill cap labeled "Hydraulic Fluid Only".

## PUMP

The system shall be powered by a pressure compensated load sensing hydraulic pump. The pump shall be sized to operate all boom functions simultaneously. The load sense feature operates any function at the optimum pressure to maximize efficiency and minimize heat build-up.

## HOUR METER

An aerial hydraulics hour meter shall be provided to accumulate hours when the transmission provides pressure to engage the PTO and the aerial enable switch is engaged.

One (1)

Emergency Pump  
EMERGENCY PUMP

Y\_\_N\_\_

The apparatus shall be equipped with an emergency hydraulic pump. The pump shall be driven by a 12 volt electric motor with power from the truck batteries. It shall be capable of providing hydraulic power for limited (slower) ladder functions and for stowage of the unit in case of prime power failure. A control switch for the emergency pump shall be located at the outrigger control station and at the aerial control. The control switch shall be a spring loaded momentary type to prevent prolonged operation of the emergency pump.

One (1)

"Hot Shift" PTO - Aerials  
HOT SHIFT POWER TAKE/OFF FOR AERIALS

Y\_\_N\_\_

The apparatus shall be equipped with a power (hot) shift PTO driven by the chassis transmission. An indicator shall be located in the cab to indicate when the PTO is engaged.

The following conditions apply for use of the PTO:

If the PTO is used to power the generator only, then the PTO can be engaged by the generator switch when the truck is in motion.

If the PTO is used to power the aerial only, then the PTO can be engaged by the aerial enable switch if the transmission is in neutral and the parking brake is set or in pump mode with the parking brake set.

If the PTO is used to power the generator and the aerial, then the generator can be used while the truck is in motion by activating the generator switch. A hydraulic valve, controlled by the aerial enable switch, shall prevent aerial operation until the transmission is in neutral and the parking brake has been set or in pump mode with the parking brake set.

There shall be no exceptions to this interlock system since it is designed to protect and safeguard personnel and equipment.

One (1)

Hoist System (Stick Aerials)  
HOIST SYSTEM

Y\_\_N\_\_

Two (2) double acting (power up and power down) lift cylinders shall provide smooth and precise elevation from -5 to 80 degrees above horizontal. Units that do not operate below 0 degrees shall not be acceptable. The elevation cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should a charged line be severed at any point within the hydraulic system.

One (1)

Extension-Retracton System (100')  
EXTENSION-RETRACTION SYSTEM

Y\_\_N\_\_

A full hydraulic powered ladder extension and retraction system shall be provided utilizing dual hydraulic cylinders and cables. Each cylinder shall be capable of operating the ladder in the event of a failure of the other. The extension/retraction cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should a pressurized hydraulic line be severed at any point within the system. The extension/retraction cables shall be of the following diameters: 3/8" 2nd section; 5/16" 3rd section; 1/4" fly section.

Wear pads shall be provided between the telescoping sections for smooth operation. Wear pads shall be composed of high strength polymers with friction reducing additives.

One (1)

Rotation Interlock System - TDA  
ROTATION INTERLOCK SYSTEM

Y\_\_N\_\_

The apparatus shall be supplied with a rotation interlock system. This interlock system shall not allow the aerial to be rotated over the side of the apparatus if the stabilizers on that side are not fully deployed. The interlock system shall include a light and audible alarm that will activate when rotation is no longer allowed. Once rotation is stopped the interlock system shall allow the operator to rotate away from the stopping point without the use of an override. A manual override feature shall be provided that will allow the operator at the turntable the ability to override the interlock system. There shall be NO EXCEPTIONS to this interlock system since it is designed to protect and safeguard personnel and equipment.

The rotation interlock system box/module shall be located in a junction box under the fifth wheel or gooseneck.

One (1)

Aerial Swivel - 36 Circuit, Hydraulic with No Waterway  
AERIAL SWIVEL

Y\_\_N\_\_

The aerial device shall be equipped with a swivel installed within the axial centerline of the

turntable to allow 360 degree rotation of the aerial device. The swivel shall have passages for the hydraulic lines from the hydraulic pump and oil reservoir to the aerial control valve bank. The swivel shall also maintain electrical continuity of all necessary electrical circuits while ladder is rotating or when it is immobile. A minimum of thirty-six (36) collector rings shall be provided.

One (1)

Rotation System - Drive Gear below Ladder, Front of Turntable  
ROTATION SYSTEM

Y\_\_N\_\_

A heavy-duty 34" center to center, 39.88 O. D., swing bearing shall be provided. This bearing shall feature four-point contact ball bearing design combined with offset raceway construction and individual ball separators to give maximum combined thrust and radial moment capacities. Races shall be deep induction hardened and precision ground. The bearing shall have a minimum of 61 precision, 1.38" diameter chrome alloy steel balls kept at uniform spacing by resilient spacers. Two (2) grease fittings shall be provided for proper lubrication.

The bearing shall be attached to both turntable and turntable support structure with grade 8 bolts. Both surfaces to which the bearing shall be mounted shall be milled to provide a level mounting. Welding of bearing to either support shall not be allowed, no exception. A planetary gear drive unit mounted on the turntable below the ladder, in front of the turntable and powered by a hydraulic motor shall be provided. A spring applied, hydraulically released, disc type brake shall be furnished to provide positive braking of the turntable assembly.

One (1)

Turntable - 3 Rails, Center Removable, for Drive Gear opposite Pedestal  
TURNTABLE

Y\_\_N\_\_

The turntable shall consist of aluminum tread plate to provide a slip resistant surface while operating the ladder. It shall have a minimum of 12 sq. ft. of useable walking surface.

The turntable swing bearing bolts shall be accessible from the topside of the platform. This shall allow fire department service personnel to easily perform the required periodic bolt torque tightness check. There shall be no exceptions to this maintenance requirement as it shall eliminate extended labor cost and excessive down time.

Three 1-1/4" 12 gauge stainless steel tubing guardrails, with slip resistant poly elastomer material, shall be furnished. The guardrails shall have safety connecting chains with clasps between them. One guardrail shall be located near the control console, one opposite the control console, and one directly behind the aerial ladder. All shall be a minimum of 42" high.

The guardrail behind the aerial ladder shall be removable.

One (1)

Aerial Control Pedestal - Left Side of Turntable  
AERIAL CONTROL CONSOLE

Y\_\_N\_\_

The aerial control console shall be located on the left side of the turntable facing the ladder tip.

One (1)

Hinged Aluminum Cover - Control Pedestal  
PEDESTAL COVER

Y\_\_N\_\_

A hinged aluminum tread plate cover shall be provided for the control pedestal. Two (2)

gas springs shall hold the cover in either an open or closed position.

One (1) Pedestal Cover Latch - Additional Y\_\_N\_\_  
PEDESTAL COVER LATCH

There shall be a latch installed on the pedestal cover to assist in holding the cover closed.

One (1) Pedestal (Interior Service) Work Light - (1) Triton #TLPC, LED Y\_\_N\_\_  
CONTROL PEDESTAL INTERIOR WORKLIGHT

The interior of the turntable control pedestal shall have a Triton model "TLPC" LED work light for control valve service visibility. It shall have a stand-alone toggle switch with label.

One (1) Pedestal Cover Light - (1) TecNiq Eon LED Y\_\_N\_\_  
PEDESTAL COVER LIGHT

There shall be a TecNiq Eon LED lamp installed in the pedestal cover. The light shall be activated when the PTO is engaged.

One (1) Aerial Controls - Pedestal Y\_\_N\_\_  
AERIAL CONTROL CONSOLE

The console shall be illuminated for night operation and shall have the following items clearly identified and conveniently located on or in close proximity to the console for ease of operation:

- Aerial overload chart
- Emergency override rotation switch with protective cover
- Throttle switch
- Emergency pump switch with protective cover
- Intercom system - allows communication between pedestal and end of aerial
- Three directional control handles for aerial functions

The three directional control valves shall control the elevation/lowering, clockwise/counter clockwise, and extension/retraction functions for the positioning of the aerial. The controls for the three aerial functions may be operated independently or simultaneously and shall be of the "deadman" type. A foot pedal locking feature shall be incorporated to insure the controls are non-operable unless the foot pedal is engaged when the function is being performed.

The display located in the pedestal shall include the following information:

- Low voltage (Red)
- Rung alignment (Green)
- Turntable aligned (Green)
- Aerial overload buzzer and light (Red)
- Rotation limit exceeded (Red)
- Cab avoidance (Red)
- Hydraulic system pressure
- Lower system pressure
- All warning information
- Aerial status

- Truck status
- Elevation indicator

One (1) Aerial Overload Alarm Y\_\_N\_\_  
AERIAL OVERLOAD ALARM

An alarm horn and warning light shall be provided on the control pedestal that shall sound to alert the operator should the load capacity of the aerial be exceeded. The alarm shall in no way restrict the further operation of the aerial. There will be no exception to this safety requirement.

One (1) Aerial Intercom - FRC ICA900, 2-Station, Non-Headset Y\_\_N\_\_  
AERIAL INTERCOM SYSTEM

The intercom shall be a Fire Research Model ICA-900 2 station with ACT clear voice sound system. The master shall be a push-to-talk station with 5-LED volume indicator lights and push button, arrow-up and arrow down, controls. The master unit shall be mounted on the turntable control pedestal. The hands free voice transmission slave unit shall be installed at the aerial tip or platform control console and always in transmit mode until interrupted by transmission from the master unit. The system stations shall be interconnected with shielded cable for static free operation in normal conditions.

One (1) Headset Intercom - Tiller Cab, David Clark, Intercom Only Y\_\_N\_\_  
TILLER CAB HEADSET STATION

A David Clark U3801 module for intercom only capabilities shall be provided in the tiller cab. The U3801 module shall have one headset jack and a listen level control. It shall measure 3-1/4"L x 4-3/4"W x 3"D and be located above the left shoulder on the upper left wall, in the corner. The headset hanger shall be located near the module, but on the ceiling.

One (1) Headset - Tillerman, DC #H3492 Over Head, Single Earpiece Headset Y\_\_N\_\_  
HEADSET - TILLER

One (1) David Clark model #**H3492 over head, single earpiece style headset** shall be provided for the Tillerman. Each headset shall have one (1) headset hanger hook located above the seat position. Headset hanger location shall be confirmed by the customer during the pre-construction process.

This headset shall provide a noise reduction of 23dB. It shall have a microphone on/off button. The boom shall have full flex for precise positioning and shall rotate 200 degrees for left or right side placement. It shall have a shielded 4-conductor, 5 ft coiled cord with PJ-051 plug.

One (1) Aerial Ladder Construction (100/250) Y\_\_N\_\_  
AERIAL LADDER CONSTRUCTION

**The aerial ladder shall be constructed of welded, high-strength steel throughout.** Each section shall be trussed diagonally, vertically and horizontally and be reinforced at critical points for extra rigidity. The ladder rungs shall be round. They shall extend through the web of each ladder section rail and be fully welded at both the inside and outside of the beam faces to provide excellent torsional rigidity. The rungs shall also be "K" braced. All rungs shall be covered with deeply serrated, replaceable, heavy-duty rubber sheaths, glued

and clamped securely to the rungs.

The main ladder section beams or rails shall be a hollow I-beam design for superior lateral rigidity (as compared to a hollow rectangle) and a high strength-to-weight ratio. They shall be roll formed in the factory of the bidder and be welded together by a continuous-feed automatic welding machine. Holes in the rails for the rungs shall be punched through the entire web of the I-beam. The holes shall be formed outward in a "dish" shape to obtain the widest separation between the two weld points on the rung. Prior to final assembly, the interior of the I-beam shall be wax coated to prevent corrosion.

The ladder shall use greaseless bushings on all pivot points and sheaves. Greaseless wear strips shall be used between the ladder sections. The ladder shall include a safety guard panel located at the turntable end of the base section and mounted on both sides of the ladder to prevent personnel from placing hands, elbows, etc. in the path of the aerial ladder extension or retraction.

Ladder construction shall complement the support of heavy or unbalanced loads at horizontal or low angle positions. To allow the passing of personnel on the ladder, the minimum inside width dimensions of the four ladder sections shall be as follows: Base - 31"; Lower Mid - 28"; Upper Mid - 24" and Fly - 21". To allow for safe climbing and good "handhold" positioning at any climbing angle, the minimum height of the handrails above the center line of the rungs of the four ladder sections shall be as follows: Base - 21.75"; Lower Mid - 18.5"; Upper Mid - 15.38" and Fly - 12.19".

One (1)

Aerial Ladder Slides  
AERIAL LADDER SLIDES

Y\_\_N\_\_

The aerial ladder slide rocker pads shall consist of Teflon impregnated polyethylene wear pads between each section. They shall be provided to reduce the frictional forces between the individual sections of the ladder. No exceptions to this requirement.

One (1)

Removable Tip for 250# Ladder - 4.5'  
REMOVABLE TIP (Bright Fluorescent Orange in Color)

Y\_\_N\_\_

A 4-1/2' removable tip on the fly section shall be provided and installed to allow for easy repair or replacement.

One (1)

Folding Steps - 2 Sets at Ladder Tip, Lighted, for Waterway Monitor  
LIGHTED FOLDING STEPS ON LADDER FLY SECTION

Y\_\_N\_\_

One (1) pair of extreme duty cast aluminum folding steps with cam locking feature shall be installed to provide substantial footing for a firefighter stationed at the tip of the fly section. Each step area shall be a minimum of 7" x 7" square. An aggressive serrated tread shall be provided to keep a foot from sliding off the top of the step. Each step shall come standard with a LED light built into the base of the step right above the stepping surface. Steps shall not protrude more than 1.50" into the climbing area of the ladder when in the stowed position.

One (1) additional set of extreme duty cast aluminum folding steps with cam locking feature and LED light shall be installed below those at the tip of the fly section. They shall be mounted in a position to provide substantial footing and easy access to the waterway monitor nozzle controls for those ladders equipped for monitor operation at the ladder tip. The second set of steps shall be identical in construction and use as the first set.

- One (1) Waterway - Bed Pipe, 100' TDA, 3" with 3"NPT Both Ends, Inlet @ Turntable  
AERIAL WATER SYSTEM Y\_\_N\_\_
- A single aluminum 3" bed pipe waterway shall be provided and mounted to the underside of the base section of the aerial ladder. Both ends of the bed pipe shall terminate in a 3" MNPT threads. The supply hose shall connect at the turntable.
- One (1) Adapter - Waterway, 3"FNPT X 3-1/2" MNST  
WATERWAY ADAPTER Y\_\_N\_\_
- A 3"FNPT X 3-1/2" MNST straight chrome plated brass adapter shall be provided for the waterway.**
- One (1) Adapter - Waterway, 3-1/2"FNST X 5" Storz  
WATERWAY ADAPTER Y\_\_N\_\_
- A 3-1/2" FNST X 5" Storz straight hard anodized aluminum adapter shall be provided for the waterway.**
- One (1) Cap - Waterway, 3-1/2" FNST Cap Rocker Lug  
WATERWAY CAP Y\_\_N\_\_
- A 3-1/2" FNST rocker lug chrome plated brass cap and 16" stainless steel chain shall be provided for the waterway.**
- One (1) Ladder Pipe - Akron 1495, Winch Control with S/S Cable  
LADDER PIPE Y\_\_N\_\_
- An Akron model 1495 ladder pipe shall be installed on the waterway. A winch control with stainless steel cable shall be provided on the ladder near the pedestal. **The threads on the ladder pipe discharge to be (Reading thread) 2 1/2" 3.250X6 or an adapter shall be provided.**
- One (1) Nozzle - Akron #1745 Turbomaster Fog/Straight  
NOZZLE Y\_\_N\_\_
- An Akron model 1745 MasterStream Turbomaster nozzle shall be provided. The nozzle shall be adjustable to four constant flow settings. **The threads on the nozzle to be (Reading thread) 2 1/2" 3.250X6 or an adapter shall be provided. An adapter fitting will be acceptable.**
- One (1) Stacked Tips - Akron #2499, Quad  
STACKED TIPS Y\_\_N\_\_
- One set of Akron model 2499 quad stacked deluge tips shall be provided. **The threads on the quad stacked tips to be (Reading thread) 2 1/2" 3.250X6 or an adapter shall be provided.**
- One (1) Discharge Pipe - Akron #488, 2.5" F x 2.5" M, Chrome  
DISCHARGE PIPE Y\_\_N\_\_
- An Akron Brass model 488 chrome 2.5" F x 2.5" M discharge pipe shall be provided. **The threads on the discharge adapter to be (Reading thread) 2 1/2" 3.250X6 or an adapter shall be provided. An adapter fitting shall be acceptable.**

- One (1) Ladder Pipe Hose Box- ATP, Mount above Trailer Compartments (**DRIVERS SIDE**) Y\_\_N\_\_  
LADDER PIPE HOSE STORAGE BOX (Walkway beside aerial main)  
 A ladder pipe hose storage box shall be mounted above the trailer compartments. It shall be constructed of 1/8" aluminum tread plate and shall allow hose to be loaded from the top. Slats shall be provided in the bottom of the box for hose ventilation. The box shall hold 100 feet of 3" double jacketed hose. Brackets shall be attached to the box for mounting of a ladder pipe.
- One (1) Ladder Base Light - Whelen Pioneer Plus™ PFP1 Super-LED Flood (Ea) Y\_\_N\_\_  
AERIAL LADDER BASE LIGHT  
 One (1) Whelen Pioneer Plus™ model PFP1, 12 volt 6 amp, Super-LED floodlights shall be installed on the base section of the ladder near the turntable.  
**Aerial base light shall be mounted on the left side of the ladder.**
- One (1) Ladder Fly Light - Whelen Pioneer Plus™ PFP1 Super-LED® Flood (Ea) Y\_\_N\_\_  
AERIAL LADDER FLY LIGHT  
 One (1) Whelen Pioneer Plus™ model PFP1, 12 volt 6 amp, Super-LED® floodlight shall be installed on the fly section of the ladder near the tip. The light(s) shall be controlled by the same controls as the light on the base.  
**Aerial fly light shall be mounted on the left side of the ladder. (Outside of aerial)**
- One (1) 120 Volt Wiring to Fly (100') Y\_\_N\_\_  
120 VOLT SYSTEM ON LADDER  
 120 volt wiring shall be provided to the tip of the fly section of the aerial device. The wiring shall run from a junction box mounted below the turntable through the collector ring assembly. 12 gauge, type SJO, 3 conductor cable shall be run up the aerial.
- One (1) Receptacle - Weatherproof, 120V Twist-Lock, on Ladder (Ea) Y\_\_N\_\_  
TWIST-LOCK RECEPTACLE(S)  
 One (1) 120 volt 3-wire twist lock receptacle(s) shall be provided and mounted on the aerial in a weatherproof box with spring loaded cover, on the right side of the ladder tip, opposite to the intercom.
- One (1) **NEMA type (number) of each connection shall be a L5-20R (20 Amp) Twist-lock** Y\_\_N\_\_  
 Rung Lighting - WesGarde LED Strips, for 100'/105' Ladder w/o Pinn Waterway (Ea)  
RUNG LIGHTING  
 One (1) side of each aerial ladder section shall have Wes Garde flexible, weatherproof LED strip lights installed. The light strips shall be mounted on the inside of the hand rail with mechanical fasteners and adhesive

**Rung lights shall be blue. The rung lights shall be installed on the left side of the aerial ladder, standing on the pedestal & facing the ladder. The rung lights shall be switched at the turntable control pedestal.**

One (1) Aerial Light - Switched at Pedestal, 12V/120V (Ea) Y\_\_N\_\_  
One (1) aerial light(s) shall be switched at the turntable pedestal.

One (1) Aerial Light to Activate with Aerial Enable Switch in Cab Y\_\_N\_\_  
This light shall be activated when the aerial ladder system is activated in the cab.

One (1) 6'and 8' Pike Pole - Fiberglass Handle, Mounted on Fly Y\_\_N\_\_  
LADDER MOUNTED PIKE POLE

**One (1) 6 ft. and one (1) 8 foot Leatherhead Dog Bone American Hook Pike, Hi-Viz Reflective I-Beam Fiberglass Poles** shall be mounted on the left hand side of the fly section of the ladder. **The 6 ft. pole shall be located above the 8 ft. pole. The poles shall be located behind the pick head axe.**

One (1) 6 Lb Pick Head Axe - Fiberglass, Mounted on Fly Y\_\_N\_\_  
LADDER MOUNTED PICK HEAD AXE

A 6 lb. pick head axe with fiberglass handle shall be mounted on **left** hand side of the fly section of the ladder, **forward of the pike poles.**

One (1) Ladder Bracket - Base Section, for (1) Roof Ladder (16' Maximum) Y\_\_N\_\_  
LADDER BRACKET ON BASE SECTION

A ladder bracket shall be provided and mounted to the outside of the aerial base section, opposite the pedestal, to accommodate One (1) roof ladder with roof hooks at either end. (DRL roof ladder series). Ladder shall be mounted on officer side of the aerial.

One (1) Ladder Signs - 16.25", (1) Each Side, Does Not Include Lettering Y\_\_N\_\_  
LADDER SIGN

Two (2) 132" x 16.25" painted metal placards for department identification signs shall be provided. One shall be installed on each side of the bed section of the ladder. Placards shall be made of smooth aluminum sheet metal and be securely fastened to the ladder.

**Color of sign shall be WHITE.**

One (1) Generator/Inverter Test and Certification - Third Party Y\_\_N\_\_  
GENERATOR/INVERTER TEST AND CERTIFICATION

The generator/inverter shall be third party tested at the manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests shall be provided with the delivery documentation.

One (1) PTO Extension Shaft Y\_\_N\_\_  
PTO EXTENSION SHAFT FOR GENERATORS

An extension shaft shall be installed on the PTO that allows for mounting of the generator pump behind the transmission.

One (1)

Hydraulic Generator - Onan 15.0 KW, Model #15CMHG (Req. PTO Drive Shaft)

Y\_\_N\_\_

HYDRAULIC GENERATOR

An Onan 15.0 kW model 15CMHG Genset hydraulic generator system shall be provided and installed on the apparatus. There shall be a generator enable switch installed on the cab dash. The generator weighs 225 lbs. and has dimensions of 39.2" long x 16" wide x 13.8" high and is encased in a silver powder-coated steel housing. The Genset system shall be capable of producing the nominal output power of 15.0 kW, 120V/240V, 60 Hz. The Genset shall be installed per the manufacturer recommendations and shall be capable of supplying full power during all engine speeds or operation modes. The Genset shall be capable of being switched on or off at any time, with or without electrical loads applied. The Genset shall be capable of continuous operation in 120°F ambient conditions.

The hydraulic pump shall be mounted directly to the vehicle PTO when possible. An extension shaft shall be installed when it is tandem mounted to the aerial pump or if there is a 3000EVS transmission. The PTO ratio shall be selected to allow Genset operation throughout the entire engine RPM range; idle to full throttle. The hydraulic pump shall have a standard SAE mounting flange and splined shaft.

The hydraulic system reservoir shall be mounted at least 2' above the pump and shall have access for fluid filling, draining and viewing the sight glass fluid level indicator. Clearance of at least 10" above the reservoir shall be provided for hydraulic fluid filter service. The reservoir shall be equipped with a remote drain and valve below the frame rails. The system reservoir shall be labeled with the type and approximate amount of fluid required.

All connecting hydraulic hoses and fittings shall be of the size and pressure rating specified by the manufacturer. The hoses shall be adequately protected from chafing or abrasion during operation.

A display meter consisting of 4 numeric LED displays shall be provided. The meter shall simultaneously display system voltage, frequency and amperage in each of the two 120V legs. The meter shall also have provisions for toggling to total hours run and oil temp via a mode switch. A high temperature visual indicator and audible alarm shall be provided and installed.

The display meter shall be located in close proximity to the breaker box.

One (1)

Generator Shall be Located in the Tractor Compartment  
The hydraulic generator shall be located in the tractor compartment.

Y\_\_N\_\_

One (1)

Load Center - Up To Twenty Circuits  
BREAKER BOX

Y\_\_N\_\_

A twenty (20) place Square D brand, or approved equal, gray colored circuit breaker box shall be provided and installed in the front upper left hand side compartment. Manual reset

circuit breakers, matching the rated output of each specific outlet or device shall be provided. All power supply assembly conductors, including neutral and grounding conductors from the line voltage power source to the circuit breaker box shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source. Power supply conductors shall be run in nonmetallic liquid tight flexible conduit or type SO/SEO cord with a WA suffix. Conduit shall have a temperature range of -67°F (-55°C) to 221°F (105°C). Wiring from the circuit breaker box to the individual outlets and devices shall be sized in accordance with NFPA 70, *National Electrical Code* requirements. Branch circuit wiring conductors shall be run in (1) metallic or nonmetallic liquid tight flexible conduit rated for use in a temperature range of -67°F (-55°C) to 221°F (105°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C) or (2) Type SOW, SOOW, SEOW, or SEOOW flexible cord, rated at 600 volts and at temperatures not less than 194°F (90°C). A power source specification label shall be permanently attached to the apparatus near the operators control panel.

The door of the breaker box shall have a side hinge.

One (1) Generator Located Less Than 12 Ft from Load Center - Circuit Protection Not Req  
RECEPTACLE(S) Y\_\_N\_\_

One (3) 240 volt outlet(s) shall be provided. Wiring shall be 10/3 with twist-lock receptacle(s).

**Location of each 240V L6-20R (20 Amp) (1) Twist-lock receptacle shall be installed inside the upper front high side compartment on the driver's side.**

**One each side of trailer located to rear of low compartment, forward of tiller wheel,**  
**With corrosion resistant, waterproof cover**

Two (2) Cord Reel - ECR 1618-17-18, 3-Conductor (Capacity: 200 ft of 10/3) (Ea)  
CORD REELS Y\_\_N\_\_

Two (2) Hannay Model ECR1618-17-18 power rewind cord reels for live electric cable shall be provided. The reels shall be 12 volt electric rewind and be equipped with an electrical collector ring with a minimum #10 gauge, 3-conductor wiring. Capacity of each reel shall be a minimum of 200 feet 10/3 gauge or 250 feet of 12/3 gauge electric cable.

**Motor speed shall be 70 rpm, STD (49 sec to rewind 100 ft).**

Two (2) Cord Reels Shall be located as follows: Y\_\_N\_\_

**The cord reel shall be located one (1) each side on top of the generator compartment.**

Two (2) 10/3 Cord Reel Cable - Per 200 foot length Y\_\_N\_\_

CORD REEL CABLE(S)

Two (2) 200 foot length(s) of 10/3 type SO electric cable shall be provided and installed on the cord reel.

- One (1) Junction Box - Akron Brass, (2) L5-20R & (2) 5-20R, w/ Pigtail & Mtg Box Y\_\_N\_\_  
ELECTRICAL JUNCTION BOX

An Akron Brass 4-receptacle junction box shall be provided for distribution of electrical power on the fire ground. The box shall be constructed of aluminum and shall be completely powder coated in high visibility yellow with gray hinged protective receptacle covers and the full length carry handle. Internally lighted faceplates shall provide sufficient light to make connections and alert the crew that the box is in "power-on" status. The junction box shall have dimensions of 9.25" long x 5.5" wide x 8.5" high. The box shall be equipped with a 12-inch pigtail with a wire mesh cord grip and a L5-20 connection.

A total of four (4) single receptacles shall be provided; two (2) NEMA L5-20R twist-lock and two (2) NEMA 5-20R household, straight blade. Each receptacle shall be rated for 20 amps at 125 Volts.

A mounting box, with brushed stainless finish, shall be provided for the junction box.

**The mounting box shall be placed vertically. The junction box shall be located at the Engineering Conference.**

- One (1) Cab Front Brow Mount - Whelen Pioneer™ PBA0130 (Ea) Y\_\_N\_\_  
CAB FRONT BROW MOUNT SCENE LIGHT

One (1) Whelen Pioneer™ model PBA0130 mount shall be installed on the cab front brow. The brow mount shall be adjustable to 15 degrees downward angle.

**The PBA0130 mount shall be on the center of the cab front brow. The mount shall be white.**

- Two (2) Cab 12V Surface Mount - for Whelen Light (Ea) Y\_\_N\_\_  
CAB SURFACE MOUNT SCENE LIGHTS

Two (2) surface light mounts for Whelen lamphead shall be installed **one (1) each side of the cab above the side cab access doors.**

- Four (4) Fixed Top Mount - Whelen #Pioneer™ Pedestal PBAPED (Ea) Y\_\_N\_\_  
FIXED TOP MOUNT SCENE LIGHTS

Four (4) Whelen fixed, pedestal top mounts, model PBAPED, shall be provided. The mounting base of each shall swivel 360 degrees and the mount shall tilt up and down.

**The PBAPED top mounts shall be located one (1) each side of the trailer above the forward high side compartment and one (1) each side of the trailer above the rearmost high side compartment.**

- One (1) Body Rear Recessed Mount - Whelen #Pioneer™ PBA203, for Dual Lamp (Ea) Y\_\_N\_\_  
BODY TILLER RECESSED MOUNT SCENE LIGHT

One (1) Whelen Pioneer™ model PBA203 recessed mount for dual lamp heads shall be installed on the rear of the Tiller Cab. **The mount shall orient the lighting at a 15 degree downward angle.**

Two (2) Telescopic Pole Mount - Whelen #3000, Bottom Mount, Push-Up, 12" Outer  
TELESCOPIC POLE MOUNT SCENE LIGHTS Y\_\_N\_\_

Two (2) Whelen series 3000 bottom mount, push-up, 57", telescopic pole(s) with 12" outer body shall be provided **and installed one (1) each side on the rear of the tractor cab.**

Two (2) Light Head - Whelen #810CA0ZR, 12V with 8-32 Degree Optics, 10x8, Halogen (Ea) Y\_\_N\_\_  
Two (2) Whelen model 810CA0ZR, 12 volt, halogen, 10" x 8" light heads with 8 to 32 degree optics shall be provided **and installed one (1) each side of the cab above the side cab access doors.** Each lamp shall have two (2) 27 watt bulbs. Each light shall have a chrome plated flange.

One (1) Light Head - Whelen Pioneer™ PFA1, 12V, Super-LED®, Single Lamp Flood (Ea) Y\_\_N\_\_  
One (1) Whelen Pioneer™ model PFA1, 12 volt, 3 amp, Super-LED® single lamp flood, light head(s) shall be provided.

Four (4) Light Head - Whelen Pioneer™ PFA2, 12V, Super-LED®, Dual Lamp Flood (Ea) Y\_\_N\_\_  
Four (4) Whelen Pioneer™ model PFA2, 12 volt, 6 amp, Super-LED® dual lamp flood, light heads shall be provided **and installed two (2) each side of the trailer on the Non-telescopic Mounts.**

One (1) Light Head - Whelen Pioneer™ PFA2, 12V, Super-LED®, Dual Lamp Flood (Ea) Y\_\_N\_\_  
One (1) Whelen Pioneer™ model PFA2, 12 volt, 6 amp, Super-LED® dual lamp flood, light head shall be provided **and installed in the mount on the rear of the tiller cab..**

Two (2) Light Head - Whelen Pioneer Plus™ PFP1, 12V, Super-LED®, Single Lamp Flood (Ea) Y\_\_N\_\_  
Two (2) Whelen Pioneer Plus™ model PFP1, 12 volt, 6.5 amp, Super-LED® single lamp flood, light head shall be provided **and installed on the telescopic poles on the rear of the tractor cab.**

Four (4) Handle Bars - For Whelen Pioneer™ & Pioneer Plus™ Lamp Head Y\_\_N\_\_  
HANDLE BARS

Handle bars shall be installed on the mount to facilitate adjustment of the lamp head. The bars are composed of a super tough nylon composite. One bar comes up behind the lamp head, and one extends forward.

Two (2) Handle Bars - For Whelen Pioneer™ & Pioneer Plus™ Lamp Head Y\_\_N\_\_  
HANDLE BARS

Handle bars shall be installed on the mount to facilitate adjustment of the lamp head. The bars are composed of a super tough nylon composite. One bar comes up behind the lamp head, and one extends forward.

Two (2) Brackets - (2), 2", White, (Ea Pair) Y\_\_N\_\_  
Two (2) pair of white bracket(s) with a 2" offset shall be provided to mount the telescopic pole(s) to the apparatus.

Two (2) Light Raised Indicator Sensor - Whelen (Ea) Y\_\_N\_\_  
Two (2) Whelen telescopic pole(s) shall be connected to the hazard indicator in the cab. The hazard light shall be activated when the telescopic light is not in the nested position.

One (1)	Finish Light Head - Whelen, White (Ea) One (1) Whelen light heads shall be painted white.	Y__N__														
Four (4)	Finish Light Head - Whelen, White (Ea) Four (4) Whelen light heads shall be painted white.	Y__N__														
One (1)	Finish Light Head - Whelen, White (Ea) One (1) Whelen light heads shall be painted white.	Y__N__														
Two (2)	Finish Light Head - Whelen, White (Ea) Two (2) Whelen light heads shall be painted white.	Y__N__														
One (1)	12V Light Switched at Cab Dash (Ea) One (1) 12 volt <b>Cab Brow</b> light shall be switched at the cab dash. <b>Switch to be labeled 'BROW LIGHT'.</b>	Y__N__														
Two (2)	12V Light Switched at Cab Dash & Operator Stand w/ 3-Way Momentary Switch (Ea) Two (2) 12 volt <b>Cab Side Scene lights</b> shall be switched at the cab dash <b>and whenever a cab door is opened. The switches to be labeled 'LEFT CAB SCENE' and 'RIGHT SIDE SCENE'</b>	Y__N__														
Two (2)	12V Light Switched at Cab Dash & 2nd Location with 3 Way Momentary Switch (Ea) Two (2) 12 volt <b>Non-Telescopic Floodlights</b> shall be switched at the cab dash and <b>at the breaker panel. The switches to be labeled 'LEFT TRAILER FLOOD', 'RIGHT TRACTOR FLOOD'.</b>	Y__N__														
One (1)	12V Light Switched at Cab Dash & 2nd Location with 3 Way Momentary Switch (Ea) One (1) 12 volt <b>Rear Tiller Cab Floodlight</b> shall be switched at the tractor and tiller <b>cab dash</b> with a 3-way momentary switch.	Y__N__														
Two (2)	12V Light Switched at Cab Dash & 2nd Location with 3 Way Momentary Switch (Ea) Two (2) 12 volt <b>Telescopic Floodlights</b> shall be switched at the cab dash and a second location with a 3-way momentary switch. <b>The switches shall be labeled 'LEFT TRACTOR FLOODLIGHT' and 'RIGHT TRACTOR FLOODLIGHT'.</b>	Y__N__														
One (1)	Ground Ladders - TDA, Alco-Lite, 244' <u>GROUND LADDERS</u>  Ladders shall be provided in full compliance with NFPA 1901 requirements for aerial trucks. Ladders shall be individually mounted under the aerial ladder and tiller cab and properly labeled. <b>Two hundred and forty four (244)</b> feet of Alco-Lite ladders shall be provided as follows:  <table border="0" style="margin-left: 40px;"> <tr> <td>-Two 35 ft., 2-Section</td> <td>- Model PEL-35</td> </tr> <tr> <td>-Two 28 ft., 2-Section</td> <td>- Model PEL-28</td> </tr> <tr> <td>-One 24 ft., 2-Section</td> <td>- Model PEL-24</td> </tr> <tr> <td>-One 10 ft., Folding</td> <td>- Model FL-10</td> </tr> <tr> <td>-Two 18 ft. Roof</td> <td>- Model PRL-18</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>-One 16 ft., Combination</td> <td>- Model CJL-16</td> </tr> </table>	-Two 35 ft., 2-Section	- Model PEL-35	-Two 28 ft., 2-Section	- Model PEL-28	-One 24 ft., 2-Section	- Model PEL-24	-One 10 ft., Folding	- Model FL-10	-Two 18 ft. Roof	- Model PRL-18			-One 16 ft., Combination	- Model CJL-16	Y__N__
-Two 35 ft., 2-Section	- Model PEL-35															
-Two 28 ft., 2-Section	- Model PEL-28															
-One 24 ft., 2-Section	- Model PEL-24															
-One 10 ft., Folding	- Model FL-10															
-Two 18 ft. Roof	- Model PRL-18															
-One 16 ft., Combination	- Model CJL-16															
One (2)	Additional Non-Standard Ladders Required	Y__N__														

NON-STANDARD LADDERS

One (2) The following ladders shall be provided:  
Alco-Lite DRL-16 Roof Ladder Y\_\_N\_\_

**DRL-16 ROOF LADDER**

**One (1) DRL-16 roof ladder shall be supplied and stowed on the aerial base section.**

GROUND LADDER

One (1) DRL 16 ft aluminum roof ladder, Model DRL-16 shall be provided and stowed on the( officers side) of the aerial ladder base section.

One (1) Ladder - Step, Little Giant 1AA, Model 13, Aluminum (Ea) Y\_\_N\_\_  
LITTLE GIANT LADDER SYSTEM

One (1) Little Giant Type 1AA, model 13 aluminum ladder system shall be provided and located on the trailer catwalk, Drivers side above the 2nd High Side Compartment.

One (1) Ladder Brackets with Retaining Box for Little Giant Ladder Storage Y\_\_N\_\_  
LADDER BRACKETS

Bracket assembly shall be installed for mounting of a Little Giant ladder. A four-sided retaining box constructed of aluminum tread plate shall be installed to hold the top of the ladder. Two (2) aluminum tread plate locating angles shall be provided to capture and hold the ladder base. A retaining strap with push button buckle shall also be provided to lock down the ladder.

**One (1) 16' roof ladder shall be stowed on the officer side of the trailer to the rear of the high side compartments on stainless steel Unistrut with a mill finish. The ladder brackets shall have up and down adjustment without the need to drill holes or modify the brackets. A set of brackets to accommodate a 16 ft roof ladder shall be installed on the driver's side (identical place as officer side).**

**Polished aluminum pull/quarter turn type ladder clamps shall be provided for the ground ladders. They shall be vertically adjustable up and down independent of the ladder brackets. Clamps shall be attached to a stainless steel spring loaded shaft. Clamp spring tension shall be adjustable. The spring assembly shall be fully enclosed within a white metal cast housing. Housing shall be painted a silver/gray color. A vertically adjustable rubber bumper shall be placed in the ladder bracket mounting guide to serve as a stop or rest for the inside lower ladder beam and to prevent it from hitting and damaging the body sides.**

One (1) Ground Ladder Mounting - Vertical, for TDA with 30" Ladder Stakes Only Y\_\_N\_\_  
GROUND LADDERS MOUNTED VERTICALLY

The specified ground ladders shall be vertically mounted, with slides top and bottom.

One (1) Ladder Compartment Doors - Smooth Alum, f/Chevron Striping w/o Cam Ladder Locks Y\_\_N\_\_  
LADDER COMPARTMENT DOORS

Aluminum double doors shall be provided at the rear of the ground ladder compartment. The doors shall be constructed of smooth aluminum, to accommodate the installation of chevron striping. The doors shall be double panel construction, shall include gas operated door stays and shall be held shut with a "D" ring positive lock. The compartment lights shall automatically be activated by a door switch when door is opened. The door switch shall be integrated with the door ajar/hazard warning system.

One (1) Ladder Bay Lights - (2) Triton #TLPC, LED Y\_\_N\_\_  
LADDER BAY LIGHTS

The ladder bay opening shall be illuminated by two (2) LED lights from Triton, model TLPC. Each weatherproof light shall have 15 LED bulbs and a lens that measures 1.125" in diameter. The lights shall be activated by opening the ladder bay doors. The door switch shall be integrated into the door ajar hazard warning system.

One (1) Pike Poles and Misc. Equipment (Aerial) Y\_\_N\_\_  
PIKE POLES AND MISCELLANEOUS EQUIPMENT

The following pike poles shall be mounted in PVC tubing:

Two (2) Pike Pole - 6' Leatherhead Dog Bone American Hook, Orange (Ea) Y\_\_N\_\_  
PIKE POLES (Inside of lower frame compartment)

**Two (2) 6 ft. Leatherhead Dog Bone American Hook Pike, Orange Hi-Viz Reflective I-Beam Fiberglass Pole** shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook. **(Inside of lower frame rail compartment)**

Two (2) Pike Pole - 8 ft. Leatherhead Dog Bone American Hook Pike, Orange (ea) Y\_\_N\_\_  
PIKE POLES (Inside of ladder compartment)

**Two (2) 8 ft. Leatherhead Dog Bone American Hook Pike, Orange Hi-Viz Reflective I-Beam Fiberglass Poles** shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

One (1) Pike Pole - 10 ft. Leatherhead Dog Bone American Hook Pike, Orange (ea) Y\_\_N\_\_  
PIKE POLE (Inside of Ladder compartment)

**One (1) 10 ft. Leatherhead Dog Bone American Hook Pike, Orange Hi-Viz Reflective I-Beam Fiberglass Poles** shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

One (1) Pike Pole - 12 ft. Leatherhead Dog Bone American Hook Pike, Orange (ea) Y\_\_N\_\_  
PIKE POLE (Inside of Ladder Compartment)

**One (1) 12 ft. Leatherhead Dog Bone American Hook Pike, Orange Hi-Viz Reflective I-Beam Fiberglass Poles** shall be provided. The handles shall be solid fiberglass with

stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

Two (2) Roof Hook - 6', Fire Hooks "NY" #RH-6 with Steel Handle (Ea) Y\_\_N\_\_  
ROOF HOOK - NEW YORK (Mounted vertically against outside of rear cab wall)

**Two (2)** 6 ft. Fire Hooks "NY" fire hook Model #RH-6 with handle shall be provided.

Six (6) Pike Pole Mounting - PVC Tube (Ea.) Y\_\_N\_\_  
PVC PIKE POLE MOUNTS

Six (6) PVC tubes shall be mounted **in the area between the frame rails, below the ladder banking compartment** to facilitate storage of pike poles.

One (1) Wheel Chocks - (4) Zico SAC-44-E Folding Aluminum (Aerial) Y\_\_N\_\_  
ZICO FOLDING ALUMINUM WHEEL CHOCKS (located at pre-contr meeting)

Four (4) Zico folding aluminum wheel chocks Model SAC-44-E shall be furnished and shipped loose by the apparatus manufacturer. Four (4) SQCH-44-H holders shall be installed by the manufacturer, one in front of and one behind the rear wheel(s), on both sides of the apparatus. Preferably not under frame of apparatus.

One (1) Warranty - Onan Hydraulic Generator, 5 Year Y\_\_N\_\_  
ONAN HYDRAULIC GENERATOR WARRANTY

The Cummins Onan hydraulic generator shall have a 5 year / 1000 hour limited warranty from the manufacturer.

One (1) Paint - Preparation, Processes & Finish Y\_\_N\_\_  
PROCESSES

The following processes shall be employed in the finishing of the apparatus:

Manual Surface preparation – All metal surfaces on all custom body and cabs shall be thoroughly cleaned and prepared for paint. Surfaces that shall not be painted include all chrome plated, polished stainless steel and bright aluminum tread plate. As required, weld seams and other areas shall be caulked to prevent water leaks or for appearance reasons. Each imperfection on the exterior metal surface shall be removed or filled and then sanded for a smooth flat appearance.

Chemical Cleaning and Treatment – All painted surfaces shall be washed with a chemical degreaser, cleaner and surface conditioner to allow for proper adherence of primer coat. Then they shall be washed with a neutralizer product. All products used are approved by paint supplier and applied under strict process control to meet performance requirements on corrosion prevention and chip resistance.

Primer/ Surface Coating for Top Coat application – a minimum of 2 coats of Epoxy based primer shall be applied to surfaces inside and outside of cabs and bodies and all other parts of apparatus that shall receive a Top color coat to achieve required corrosion protection. After that a minimum of 2 coats of sealer shall be applied over the primer surface. The overall thickness of the primer/sealer coat shall be between 3 to 8 mils wet. Once dried and cured all surfaces that shall receive a top coat shall be hand sanded to achieve a flat and

smooth surface to meet gloss and other paint quality standards. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with manufacturers Paint Quality Standard. The underside of the cab and body shall be finished with one coat of epoxy primer specifically designed for this application to prevent corrosion and provide chip resistance to typical paved road conditions.

Top Coat Application – Each Top Coat final color on the apparatus is applied using a two stage paint process. The unit shall be thoroughly hand cleaned to eliminate dust residues and to detect any imperfection in the surfaces to be painted. A fast drying 3.5 VOC polyurethane basecoat color shall be applied using a cross coat application technique. Additional coats may be applied as required until the coat thickness reaches 2.0 to 6.0 mils wet and a full hide appearance. If a second color is required, proper masking shall be applied to the unit and the basecoat application process shall be repeated for the second color. A slow drying low VOC High Build clear coat shall be applied using a cross coat application technique until a minimum of 5.0 mils wet is achieved. The unit is then properly heated to assure flash and cure of the paint before leaving the paint booth. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according to manufactures Paint Quality Standard.

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

The cab and body shall be primed and finish painted prior to installation on the chassis to ensure paint coverage in all areas including the difficult to reach places. The exterior and interior of the cab shall be finish painted before the doors are installed or any assembly is started to ensure a finish painted surface beneath all trim items.

Primer/ Surface Coating for Single Coat application – a minimum of 2 coats of Epoxy based primer shall be applied to all surfaces of the apparatus that shall receive a single color coat to achieve required corrosion protection. This is a wet coat process and it shall achieve a 3.0 to 8.0 mills wet thickness and complete coverage of all bare metal. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with manufacturers Paint Quality Standard.

Single Coat Application – A minimum of 2 coats of direct gloss paint shall be applied over all primed surface to achieve corrosion protection and appearance in accordance with manufacturers Paint Quality Standard. This application shall be used for Gloss Black, Job Color and Color finishes in parts of the apparatus such as frame rails, outriggers, ladders and other aerial devices, suspension and other chassis parts, etc. as defined in the sales order.

Zolatone Coat Application – All areas to receive a Zolatone coat shall be primed following the primer/surface coating for top coat application. A high pressure coat of Zolatone paint shall be applied in a cross pattern technique to achieve smooth finished surface. A second low pressure coat of Zolatone paint shall be applied in a single pattern to achieve a textured appearance.

Zolatone Clear Coat Application – Starting with a completed and dry Zolatone coat application 2 to 3 coats of Zolatone clear coat shall be applied until a thickness of 5.0 mills wet is achieved.

### PAINTERS

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

### FACILITY

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

### QUALITY STANDARDS

The finish quality and appearance shall be in accordance with the manufacturers Paint Quality Standards for dirt, gloss, reflectivity, clarity and depth of image. The standard is available to the customer at any time upon request.

One (1)

Paint - Frame & Undercarriage Finish (TDA's)  
FRAME & UNDERCARRIAGE FINISH

Y\_\_\_N\_\_\_

The chassis frame, bumper extension, suspension, axles, air tanks, fuel tank, battery boxes, etc., shall have an additional coat in the color selected in this order applied over the primed surface as supplied by the component manufacturer. Single Coat application process shall be used to apply the color selected in this order using direct gloss paint on identified parts, as listed below:

- Tractor & trailer frame rails, cross members.
- Tractor fifth wheel.
- Trailer gooseneck.
- Front bumper extension.
- Tractor & trailer axles and suspension.
- Battery boxes.
- Fuel tank and fill tube.
- Air reservoir tanks.
- Hydraulic reservoir tank.
- Body mounting brackets.
- Tractor & trailer steering gear box and steering link arm.
- Drive shafts.
- Ground ladder storage stakes.

The following items shall always be furnished with the finish as provided by their respective manufacturer.

- Engine, transmission and accessories.
- Exhaust system.
- Retarder (when furnished).

PTO & hydraulic pump.  
Cab lift cylinders & hydraulic pump.  
Shock absorbers.  
Fuel filter.  
Air drier and air cleaner.  
Electric wiring and loom.  
Air brake lines, valves and mounting brackets.

One (1) Paint - Cab Interior, Gray Zolatone Paint Y\_\_N\_\_  
PAINT INSIDE OF CAB

The inside of the cab shall be provided with gray Zolatone paint following the Zolatone Coat application process.

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

One (1) Paint - Cab Exterior, Two Tone Y\_\_N\_\_  
TWO TONE CAB PAINT

The cab shall be two tone painted with the paint break just below the windshield. The paint shall follow the Top Coat application process for two colors.

**Cab Upper Exterior Paint # 2185 (White)**

**Cab Lower Exterior Paint # 70094 (Red)**

One (1) Paint - Tiller Cab Interior, Gray Zolatone Paint Y\_\_N\_\_  
CAB INTERIOR PAINT FINISH

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

The following components shall be painted:  
Exposed interior surfaces of the cab structure, including the dash area  
Exposed interior surfaces of the doors  
All interior "metal" access/wire covers of the cab  
Interior surface of the vents, manual 2-way  
Miscellaneous brackets, if present: camera mounts, non-recessed radios, charger covers

One (1) Paint - Tiller Cab Exterior, (Two colors) Y\_\_N\_\_  
TWO TONE COLOR TILLER CAB PAINT- White-Top, Red- lower

The exterior of the tiller cab shall be painted dual colors. The paint shall follow the Top Coat application process matching the tractor cab

**Tiller cab exterior paint numbers (#2185- Top cab, # 70094 - Lower)**

One (1) Cab Decorative Paint Break Molding - 5G radius Y\_\_N\_\_  
A decorative molding shall separate the two colors around the cab. The paint break shall

be horizontal across the front of the cab above the wipers and taper down with a radius even with the outside corners of the grille.

One (1)

Paint - Body Exterior, Two Tone  
BODY PAINT, TWO TONE White- Top, Red- Lower

Y\_\_N\_\_

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

**Body exterior paint number shall be # 70094**

One (1)

Standard Finishes for Small Parts  
STANDARD FINISHES FOR SMALL PARTS, 2010 CUSTOM CAB

Y\_\_N\_\_

Definition: Mill Finish: as is from the manufacturer; no finish applied. It may have scratches, but it shall be shiny as a result of being cleaned through a deoxidization process. Parts with mill finish may have been cleaned in a dipping process to deoxidize the part.

Definition: Etchfinish: The part(s) shall be cleaned and etched to a uniform bright finish.

## CHASSIS

Chassis bracket: Painted same as cab exterior

## CAB

Cab compartments, including cab side access compartments:

Exterior Finish: Line-X.

Interior Finish: Mill finish (Upgrade available to DA or Paint)

Cab compartment shelves:

DA (Just the outside edge of the shelf shall be DA'd. All other surfaces shall be mill finish.)

## CAB – BODY

Bumper / running board hose wells:

Flange: DA

Interior & exterior walls: Mill finish

If the hose well sticks above the gravel pan: DA the edges

Inner liners: Mill finish

All steps, including pull downs & those on access ladders: DA outsides

Hat Section Bracket for Compartment, Ground or Step Lights: Mill finish. If compartment is painted, then the hat section brackets shall be painted.

Trim Rings: Mill finish

Patch plates: Brushed S/S (Upgrade available to polished or ATP) STD is No patch plates

Label backing plates: DA

Marker light guards: As purchased

Switch guards – S/S: Brushed

## OPERATOR STAND AND PLUMBING

Plumbing: Pump, intake & discharge valves, drains, all hard piping\*, including pipes protruding from the pump panel: Mill finish (Upgrade available to job color)

\*1. All exposed pipe (not including cut threads) at the rear of the truck or welded pre-connect assemblies at the front of the body shall be painted job color.

\*2. All pipe holding brackets made of black steel shall be painted black, or job color if the whole surrounding area is painted job color.

Pump enclosure interior: Mill finish (Upgrade available to job color)

Open bin interior surfaces: Mill finish (or ATP if that is the original surface). In no cases, paint unless “specified by the customer.

Crosslays –

    Inside surfaces – DA

    Partitions - DA

Speedlays:

    With pull out tray- DA

Heat Pans: Mill finish (Upgrade available to DA or paint color of underside)

Running Board w/ Floating Trough: Frame shall be painted black.

## BODY

Compartment louvers: Same color as compartment interior walls,

Compartment shelves & trays:

    DA (Just the outside edge of the shelf shall be DA'd. All other surfaces shall be mill finish.

    Upgrades available: Paint Zolatone or job color. All surfaces shall be painted.

Compartment shelf & tray brackets: Mill finish

Brackets to hold compartment doors open: Mill finish

Compartment door auxiliary locking brackets: Brushed

Rear aluminum compartments: Mill finish (upgrade available to paint)

Rear aluminum compartment door interiors:     ATP Exterior Door: DA Finish Interior  
Smooth Exterior Door: Etchfinish  
Interior

Breaker box mounting brackets: Mill finish

Pegboard: Mill finish (upgrade available to DA)

Hose chutes & Ladders-Thru Compartments: Mill finish (upgrade available to paint)

Partition mounting brackets: Mill finish

Hydraulic ladder rack: Etchfinish

Ground ladder brackets: Etchfinish

Ground ladder or suction racking (fixtures, slides) within compartments: Mill finish

Pike poles tubes - Aluminum: D/A (Upgrade available to paint)

Pike poles tubes – S/S: D/A (Upgrade available to paint)

Wheel chock holders: Mill finish

## AERIAL COMPONENTS

Turntable floor grating: DA sides

Turntable underside (except cut away area): Painted

Pedestal cover brackets: DA

Pedestal cover interior: DA

Pedestal compartment door interiors: Mill finish

Electrical compartment panels:

Upper connection panel – Mill finish

Lower ECM panel – Mill finish

Grating on top of body: DA sides

Jack control boxes:

Interior – Mill finish

Door interiors – Mill finish

Cab avoidance switch brackets: Mill finish

Outrigger pad holder brackets: Mill finish

Outrigger pads: Mill finish

Downrigger watt pin & watt pin holder: DA

Piping – Swivel to Waterway: Mill finish

Waterway: Mill finish

Waterway: Brackets Mill finish

Monitor: Mill finish

Brass elbow on cord reel on aerial: Mill finis

Mounts/ brackets to hold ladders to aerial or boom: Painted same color as ladder

Mounts/brackets to hold pike poles to aerial or boom: painted same color as ladder

Mounts/brackets to hold stokes basket to ladder: painted same color as ladder  
(ATP box to hold basket shall be mill finish)

One (1)

ACORN NUTS

Y\_\_N\_\_

Acorn nuts shall be installed on all exposed screws and bolts in areas where personal injury may result and/or damage to equipment may occur. For further details, please refer to the enclosed standards document.

One (1)

COMPARTMENT LOCATIONS - DEFINITION FOR COMPONENT LOCATIONS

Y\_\_N\_\_

All definitions are based on facing the opening to the compartment.  
These definitions apply to all compartments.

One (1)

Paint - Outriggers & Jacks  
OUTRIGGERS & JACKS PAINT

Y\_\_N\_\_

The outriggers and jacks shall be painted according to manufacturer's paint standards. All paint shall follow the Single Coat application process.

One (1)

Paint - 100' Ladder & Components, Standard White  
LADDER AND COMPONENTS PAINT

Y\_\_N\_\_

The ladder sections, turntable, lift cylinders and ladder rest shall be painted PPG 91327 white. Single Coat application process shall be used to apply the color selected in this order using direct gloss paint on identified parts.

One (1)

LADDER STAKES & HYDRAULIC RESERVOIR FINISH

Y\_\_N\_\_

The ground ladder storage stakes and hydraulic reservoir tank shall be painted matte black following the Primer/Surface Coating Process for Single Coat Application.

One (1)

Paint - Aerial Ladder Tip: **Bright Orange in color**

Y\_\_N\_\_

One (1)

REFLECTIVE STRIPING

Y\_\_N\_\_

A 6" reflective stripe shall be provided around the perimeter of the vehicle. At least 50 percent of the cab and body sides, at least 50 percent of the rear body width and at least 25 percent of the width of the cab front shall have reflective material affixed to it per NFPA standards.

**Exact location and presentation on the apparatus where the striping shall be installed: \_\_\_\_\_**

**Color shall be:**

**[ X ] WHITE**

One (1)

CHEVRON STRIPING

Y\_\_N\_\_

The trailer rear face, as indicated by the fire department, shall be covered with 6" wide reflective striping in an alternating Scotchlite™ Red #680-72 and Scotchlite™ Yellow #680-71 chevron pattern. The stripes shall run at a 45 degree downward angle from the top center of the vehicle.

**Doors to be covered with chevron striping shall be:**

**[ ] ladder compartment doors**

**[x ] frame rail area door**

**[x ] rear step compartment door**

**Two Red panels ---Wide X ----Long on ladder compartment doors**

**One each with a white reflective L (drivers side) 1 (officers side)**

Twenty (20)

LETTERING

Y\_\_N\_\_

Twenty (20) letters in 10" reflective color shall be installed on the apparatus.

The following lettering shall be installed on the ladder sign placards on each side.

(READING) AHEAD OF LADDER (the word ladder shall be arched) with a 1, centered and below the arched word Ladder. All letters and number shall be RED in color.

One (1) Apparatus Logos and Name Plaques Y\_\_N\_\_  
APPARATUS LOGOS AND NAME PLAQUES

Logos and name plaques shall be placed on the apparatus as identified on the attached PDF.

One (1) Y\_\_N\_\_  
MANUFACTURER'S LIMITED WARRANTY

**A limited five (5) year warranty for parts and labor shall be provided.**

**Limited shall be defined by bidders**

The City also wants what the price would be if we go with a bumper to bumper warranty. How long is it for? What does it cover?

As far as a limited warranty, how long does it cover the truck for? What all does it cover?

One (1) Y\_\_N\_\_  
CAB FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A cab limited fifteen (15) year structural warranty shall be provided.

One (1) Y\_\_N\_\_  
STAINLESS STEEL BODY FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A limited stainless steel body fifteen (15) year structural warranty shall be provided.

One (1) Y\_\_N\_\_  
AERIAL DEVICE TWENTY YEAR STRUCTURAL LIMITED WARRANTY

A limited aerial twenty (20) year structural warranty shall be provided.

One (1) Y\_\_N\_\_  
CHASSIS FRAME RAIL & CROSS MEMBER STRUCTURAL LIMITED LIFETIME WARRANTY

A limited lifetime frame rail and cross members structural warranty shall be provided.

Y\_\_N\_\_  
PAINT/CORROSION LIMITED WARRANTY

A limited pro-rated paint ten (10) year warranty shall be provided.

One (1)

Y\_\_N\_\_

WEIGHT ANALYSIS - LOOSE EQUIPMENT

It shall be the responsibility of the purchaser to specify the details of the apparatus; its required performance, including where operations at elevations above 2000 ft (610m) or on grades greater than 6 percent are required; the maximum number of fire fighters to ride within the apparatus; specific added continuous electrical loads which exceed the minimum of this standard; and any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of this standard.

One (1)

Y\_\_N\_\_

ELECTRONIC OPERATOR'S & PARTS MANUAL

A binder shall be supplied that has CDs and paper documents as listed below.

The binder shall contain 2 duplicate CDs. Each CD shall have:

- Operations & maintenance instructions for items on the vehicle, not including the vendor literature
- Vendor Literature, as available, for purchased components.
  - Electrical diagrams including charts illustrating the individual wire color, number code, and function.
  - Parts manuals.
  - Parts drawings and an overall vehicle layout.
  - Certificates
  - Warranties

Printed documents shall include:

- Operations & maintenance instructions for items on the vehicle, except the engine.
- Operations & maintenance instructions for engine.
- Certificates of independent test results.
- Warranty documents.
- Manufacturer's record of construction details and engine power curve.
- Vehicle final alignment report.

One (1) to two (2) CD manuals for the water pump shall be included, if there is a pump on the unit, and as provided by the pump manufacturer. Additional CDs and paper documents, as provided by other equipment suppliers, shall also be included.

Y\_\_N\_\_

**There are no vehicles to be traded.**

**NOTICE:** It is not the intention of these specifications to prohibit or restrict responses from any vendor. A vendor whose equipment does not meet the exact specification may request a variance from the City of Reading Purchasing Coordinator. Only requests in writing will be considered.

The City of Reading will be the sole judge as to whether or not the variance will be granted.



## NON-COLLUSION AFFIDAVIT

### INSTRUCTIONS FOR NON-COLLUSION AFFIDAVIT

1. This Non-Collusion Affidavit is material to any contract pursuant to this bid. According to the Pennsylvania Antibid-Rigging Act, 73 P.S. 1611 et seq., governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.
2. This Non-Collusion Affidavit must be executed by the member officer, or employee of the bidder who is authorized to legally bind the bidder.
3. Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation, approval or submission of the bid.
4. In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.
5. The term “complementary bid” as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any form of bid submitted for the purpose of giving a false appearance of competition.
6. Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of \_\_\_\_\_

County of \_\_\_\_\_

\_\_\_\_\_, being first duly sworn, deposes and says that:

(1) He/She is \_\_\_\_\_  
(Owner, Partner, Officer, Representative or Agent)

of \_\_\_\_\_, the Bidder that has submitted the attached Bid or Bids;

(2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers; partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication of conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overheld profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Reading or any person interested in the proposed Contract;

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant; and,

(6) Neither the said Bidder nor any of its officers, partners, owners, agents or parties in interest, have any interest, present or prospective, that can be reasonably construed to result in a conflict of interest between them and the City of Reading, which the Bidder will be required to perform.

I state that \_\_\_\_\_ (Name of Firm) understands and acknowledges that the above representations are material and important, and will be relied on by the City of Reading in awarding the Contract(s) for which this Bid is submitted. I understand and my firm understands that any misstatement in this Affidavit is and shall be treated as fraudulent concealment from the City of Reading of the true facts relating to the submission of bids for this Contract.

\_\_\_\_\_  
(Name and Company Position)

SWORN TO AND SUBSCRIBED  
BEFORE ME THIS \_\_\_\_\_ DAY  
OF \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Notary Public

My Commission Expires:

NON DISCRIMINATION STATEMENT

The undersigned hereby certifies that it shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, handicap, familial status, or national origin. The undersigned shall take affirmative action to insure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, handicap, familial status, or national origin.

---

---

BIDDER

---

TITLE

**PROVIDER’S CERTIFICATION OF NON-INDEBTEDNESS  
TO THE CITY OF READING**

Provider hereby certifies and represents that Provider and Provider’s parent company(ies) and subsidiary(ies) are not currently indebted to the City of Reading (the “City”), and will not at any time during the term of this Contract (including any extensions or renewals thereof) be indebted to the City, for or on account of any delinquent taxes, liens, judgments, fees or other debts for which no written agreement or payment plan satisfactory to the City has been established. In addition to any other rights or remedies available to the City at law or in equity, Provider acknowledges that any breach or failure to conform to this certification may, at the option of the City, result in the withholding of payments otherwise due to Provider and, if such breach or failure is not resolved to the City’s satisfaction within a reasonable time frame specified by the City in writing, may result in the offset of any such indebtedness against said payments and/or the termination of this Contract for default (in which case Provider shall be liable for all excess costs and other damages resulting from the termination).

\_\_\_\_\_  
Name of Provider

By: \_\_\_\_\_  
Authorized Signatory

Title: \_\_\_\_\_  
President or Vice President

Attest: \_\_\_\_\_

# PRICING SHEET

PROPOSAL  
FOR  
FIRE TRUCK

CITY OF READING, PENNSYLVANIA

Proposal of

---

(name)

---

(address)

TO: Mayor Wally Scott  
City of Reading  
815 Washington Street  
Reading, PA 19601

Dear Mayor Scott:

In conformity with City Plans and specifications, all as prepared by the Fire Department and after an examination of the site of the work, and the Contract Documents.

The undersigned declares that no Member of Council, Director of Department, Division Manager, deputy thereof or clerk therein, or other officer of the City of Reading, is directly or indirectly interested as principal, surety of otherwise in this proposal or has any supervision or overall responsibility for the implementation in administration of the contract.

It is certified that the undersigned is the only person(s) interested in this proposal as principal and that the proposal is made without collusion with any person, firm, or corporation.

It is hereby agreed to execute the contract and furnish surety company bonds, on the forms enclosed in the Contract Documents, in the amount of one hundred percent (100%) of the contract price within ten (10) days of mailing of the contract documents from the City to the Principal, and to begin work within ten (10) days after receipt of Notice to Proceed from the City of Reading.

It is proposed to furnish and deliver all materials, tools, equipment, power, tests and transportation, perform all labor, superintendence, and all means of construction, and do all incidental work, and to execute, construct and finish in an expeditious and workmanlike manner, in accordance with the plans and specifications, to the satisfaction and acceptance of the Fire Chief for the City of Reading for the total base bid amount as herein shown below:

1. Ladder purchase price if the City pays 90% of the costs at bid award and 10% upon delivery.

Total price of Ladder is: \$ \_\_\_\_\_

2. Ladder purchase price if the City pays 50% of the costs at bid award and 50% upon delivery.

Total price of Ladder is: \$ \_\_\_\_\_

3. Ladder's purchase price of the City pays 0% of the costs at bid award and 100% upon delivery.

Total price of Ladder is: \$ \_\_\_\_\_

IN WITNESS WHEREOF, this proposal has been executed this \_\_\_\_ day of \_\_\_\_\_, 20 \_\_, by the setting hereunto of his or its hand and seal.

FOR INDIVIDUAL:

\_\_\_\_\_ (Seal)

FOR CORPORATION:

\_\_\_\_\_  
(Name of Corporation)

By:

Attest:

\_\_\_\_\_  
(Official Title)

\_\_\_\_\_  
(Secretary)

FOR PARTNERSHIP:

\_\_\_\_\_  
(Name of Partnership)

By:

\_\_\_\_\_ (Seal)

\_\_\_\_\_ (Seal)

Partners