

CITY OF SPOKANE REQUEST FOR BIDS

PART I. PRICING PAGE

TO: **PURCHASING DIRECTOR, CITY OF SPOKANE**

BID NAME: **TRACTOR DRAWN AERIAL**

BID NO: 3090-02

The undersigned agrees to furnish the following items at the prices stated, subject to the conditions and requirements of this Bid.

ITEM NO.	QUAN-TITY	DESCRIPTION	UNIT PRICE	TOTAL
1	1	TRACTOR DRAWN AERIAL		
		MAKE:		
		MODEL:		

DO NOT INCLUDE SALES TAX

Payment Terms: Net 30 days

Upon the award of bid and until the date of final acceptance, the Vendor shall guarantee that the time required from award of bid until the date of final acceptance by the City of Spokane shall not exceed _____ weeks.

F.O.B. Delivery Point: City of Spokane, 1610 N. Rebecca

Firm Name: _____ By: _____
(Type or Print)

Mailing Address: _____ Signature: _____

_____ Title: _____

Phone: _____ Date: _____

Please indicate person to be contacted by the City concerning item(s) being bid:

NAME: _____ TELEPHONE: _____

BUSINESS LICENSE REQUIREMENT. Section 8.01.070 of the Spokane Municipal Code states that no person may engage in business with the City without first having obtained a valid business license. The Vendor shall be responsible for contacting the City's Taxes & Licenses Department at (509) 625-6070 to obtain a business license or receive a determination of exemption.

CITY OF SPOKANE BUSINESS LICENSE NUMBER _____

ORGANIZATION

Proposal of an () individual () partnership () corporation organized and existing under the Laws of the State of _____.

FEDERAL TAX IDENTIFICATION NUMBER

Pursuant to United States Code, Section 6014A, the City of Spokane is required to file an annual report listing payments \$600.00 or more during each calendar year for each individual (non-employee) that performs services for the City. In order to comply, the following information is required as part of this bid document:

Federal Identification Number _____ or Social Security Number _____

ADDITIONAL ITEMS

The City of Spokane reserves the right to purchase additional items at the bid price. Vendor agrees to sell at the same price. YES _____ NO _____ If yes, prices are good until further notice.

INTERLOCAL AGREEMENT

The City of Spokane has entered into Interlocal Purchase Agreements with other public agencies pursuant to RCW 39.34. In submitting a response the vendor agrees to sell additional items at the bid price, terms and conditions to the City of Spokane and other public agencies contingent upon the seller's review and approval at the time of a requested sale. Any price de-escalation/escalation provisions of this bid proposal shall apply in the case of a sale of additional items. Seller's right to refuse to sell additional items at the time of request shall be absolute.

ORIGINAL EQUIPMENT MANUFACTURER

State name(s) and address(es) of Original Equipment Manufacturer (OEM) and distributors (if applicable) to be used in the production and delivery of your product.

NAME	ADDRESS	ZIP
_____	_____	_____
_____	_____	_____
_____	_____	_____

PLACE OF SALE

List "place of sale" for the purpose of local sales tax FIRST, i.e. outlet at which or from which delivery is made to the City of Spokane.

NAME	ADDRESS	ZIP
_____	_____	_____
_____	_____	_____
_____	_____	_____

MINORITY BUSINESS ENTERPRISE. Vendor (is____, is not____) a Minority Business Enterprise. A Minority Business Enterprise is defined as a "business, privately or publicly owned, at least 51% of which is owned by minority group members." For purpose of this definition, minority group members are Blacks, Hispanics, Asian Americans, American Indian or Alaskan Natives, or Women.

SMALL BUSINESS. Vendor (is____, is not____) a small business concern. (A small business concern for the purpose of government procurement is a concern, including its affiliates, which is independently owned and operated, is not dominant in the field of operations in which it is bidding on government contracts, and can further qualify under the criteria concerning number of employees, average annual receipts, or other criteria as prescribed by the Small Business Administration).

NON-COLLUSION

The Bidder certifies that his/her firm has not entered into any agreement of any nature whatsoever to fix, maintain, increase or reduce the prices or competition regarding the items covered by this bid invitation. _____ Initial

TABLE OF CONTENTS

<u>SECTION I.</u>	<u>GENERAL INSTRUCTIONS.....</u>	<u>4</u>
<u>SECTION II.</u>	<u>SPECIAL INSTRUCTIONS.....</u>	<u>5</u>
<u>SECTION III.</u>	<u>TRACTOR CHASSIS.....</u>	<u>10</u>
<u>SECTION IV.</u>	<u>BODY & COMPARTMENTS.....</u>	<u>33</u>
<u>SECTION V.</u>	<u>ELECTRICAL.....</u>	<u>40</u>
<u>SECTION VI.</u>	<u>ELECTRICAL SYSTEM DESIGN for ALTERNATING CURRENT.....</u>	<u>43</u>
<u>SECTION VII.</u>	<u>WARNING LIGHTS.....</u>	<u>47</u>
<u>SECTION VIII.</u>	<u>FOUR (4)-SECTION 100 FOOT TRACTOR-DRAWN AERIAL.....</u>	<u>49</u>
<u>SECTION IX.</u>	<u>PAINT.....</u>	<u>61</u>
<u>SECTION X.</u>	<u>WARRANTY.....</u>	<u>63</u>
<u>SECTION XI.</u>	<u>MANUALS.....</u>	<u>64</u>
<u>SECTION XII.</u>	<u>LOOSE EQUIPMENT.....</u>	<u>66</u>
<u>SECTION XIII.</u>	<u>OPTIONS.....</u>	<u>67</u>
<u>SECTION XIV.</u>	<u>BID PREPARATION AND EVALUATION.....</u>	<u>70</u>
<u>SECTION XV.</u>	<u>GENERAL TERMS AND CONDITIONS.....</u>	<u>71</u>
<u>SECTION XVI.</u>	<u>STANDARD TERMS AND CONDITIONS.....</u>	<u>72</u>
<u>SECTION XVII.</u>	<u>INDEX.....</u>	<u>75</u>

PART II. SPECIFICATIONS

SECTION I. GENERAL INSTRUCTIONS

1. These specifications will establish minimum acceptable requirements attempting to take advantage of the latest developments.
2. The items to be furnished by the Vendor on this bid must be of the latest possible design and production.
3. More than one Make/Model of TRACTOR DRAWN AERIAL may be bid if a separate technical section is completed for each Make/Model.
4. One or more TRACTOR DRAWN AERIAL with possible different options may either be leased or purchased by the City of Spokane or other governmental entity pursuant to RCW 39.34.
5. Unit furnished will be completely serviced and ready for use when DELIVERED.
6. Time is of the essence in the performance of this contract after a delivery schedule is established. Delivery time shall be a consideration of awarding this contract.
7. Brochures to be included with bid proposal forms.
8. References to be included with bid proposal forms if the bidder has no recent history as a supplier to the City of Spokane.
9. The Vendor must be able to service any items to be purchased by the City of Spokane. The Vendor, therefore must:
 - a) Be an authorized factory dealer for the area including the City of Spokane; OR
 - b) submit a 100% Performance Bond for the life of the equipment; OR
 - c) provide satisfactory proof by the manufacturer that service will be guaranteed.
10. The Vendor must have service experience with the items and an adequate supply of parts and supplies within a 50-mile distance or 24 hour response/deliver of the City of Spokane.
11. Vendors should be aware that bids will be rejected if all questions are not completely and correctly answered.
12. Vendor must acknowledge each individual specification shown in Section III through Section XII, Technical Specifications as follows:
 - a) "To Be Supplied" Column
Vendor will initial when the product offered is equal to or better than the individual specification.
State your exact capabilities if different from specification stated or a tolerance is given.
 - b) "Exceptions" Column
Explain all exceptions to specification as stated. NOTE: All equivalents (substitutes) require explanation. (Use additional paper with reference to item number and respective question number).
13. Signature on this proposal by the bidder will confirm receipt and understanding of general terms and conditions.

It shall be the responsibility of the Vendor to state exactly what items are being offered in place of, when an exception is taken to bids specifications. Vendor proposal shall be in the exact same order as our specifications, to aid and facilitate evaluation of proposals. Any exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the bidder.

NOTE: ALL EQUIVALENTS (SUBSTITUTES) REQUIRE EXPLANATION. (Use additional paper with reference to item number and respective question number).

Any questions concerning this bid should be directed to Art Nichols at (509) 625-7160

SECTION II. SPECIAL INSTRUCTIONS

The City of Spokane Fire Department is calling for bids for one (1) TRACTOR DRAWN AERIAL. The apparatus bid, must conform to Washington State in service vehicle weight requirements at the time of delivery. Apparatus must be NFPA 1901, 1999 edition compliant. The bidder shall bid chassis without sales tax and license and to be free of delivery charges to the Spokane Fire Department. The vehicle is to be fully operational and ready for service when received by the City.

It shall be the Vendor's responsibility to conform to all Federal and Washington State Standards for certification.

Federal and State laws governing this machine and its final certification must be satisfied.

Discontinued models and components are not acceptable. Vehicle is to be of current manufacture only.

Successful bidder shall furnish standard warranty along with statement as to where and how such warranty work will be performed on all major components including motor, transmission, (bumper to bumper).

The omission of any standard feature described herein shall not void the bidder's responsibility to furnish a complete unit with all standard equipment of the manufacturer's latest model and design. Equipment to be furnished shall be new and unused.

The unit, as specified, and all equipment, standard and optional, shall be completely assembled, adjusted, installed, and ready for use.

If the equipment offered differs from the provision contained herein, these differences must be explained in detail.

The City reserves the right to accept or reject any part of or all bids and to accept the bid deemed to be in the best interest of the City.

Bidders must complete the blanks to indicate compliance or state exceptions.

All freight expenses shall be the responsibility of the winning vendor. However, the final F.O.B. point shall be the City of Spokane, **1610 N. Rebecca**. No payment shall be made until acceptance of the entire unit.

Vendors found to have "overstated" the true ability of their units shall reimburse the City for all cost incurred with re-manufacturing of units until criteria has been satisfied. These costs shall also include legal, rentals, travel, etc.

Any litigation will be held in a court of law in Spokane, Washington.

A detailed drawing showing five (5) views of the proposed apparatus shall be submitted with each bid proposal.

2.01 INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of a complete apparatus equipped as hereinafter specified. These specifications cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. It is not the intent of the Fire Department to develop specifications that only one manufacturer can bid on, but to use these specifications as a platform to illustrate our intentions as to design and construction. Certain aspects of construction and designs are more important than others. The Fire Department reserves the right to weight the manufacturers different types of constructions and designs in the bid evaluation and not just low bid. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. Apparatus proposed by the bidder shall meet the requirements of the National Fire Protection Association (NFPA) as stated in current Pamphlet 1901 for Aerial Ladder & Elevated Platform Fire Apparatus, chapters 1, 2, 6, 8, 9, 10, 11, 16, and 23. Loose equipment shall be provided only as stated in the following pages.

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

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

Bidders are encouraged to list the amount to be deducted from the bid price for chassis progress payments as an option. The successful bidder must provide the Spokane Fire Department with a Manufacture's Statement of Origin for the chassis, upon issuance of the chassis progress payment.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

2.02 GENERAL FEATURES:

Detroit Diesel Series 60 with 430 horsepower.
Allison EVS4000P automatic transmission.
ABS anti-locking brakes.
Cab noise level enclosed cab with four (4) side doors.
Detroit Diesel less than 80 dba stationary at full operation.
Minimum 100 foot aerial ladder.
Fenderwell storage for four (4) SCBA cylinders.
60 gallon Compressed Air Foam System.
Jacobs engine brake.
120 volt lighting.
5 KW Gasoline Generator.
Storage for 200 feet of one (1) inch hose in hose tray.
Maximum overall Height shall not exceed 11' 2".

BID ANALYSIS:

Award of bid will not be based solely upon the bid amount. Evaluation will include key apparatus features.

2.03 QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units, which require periodic maintenance, ease of operation (including both aerial operation and driving) and symmetrical proportions. Where special tools are required for routine service on any components of the apparatus, such tools shall be identified and provided with the apparatus. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under "Performance Tests and Requirements". Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of any component part for service or repair. All steel welding shall follow American Welding Society D1.1-96 recommendations for structural steel welding. All aluminum welding shall be done to American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum. Flux core arc welding shall use alloy rods, type 7000, American Welding Society standards A5.20-E70T1. The manufacturer is required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

2.04 DELIVERY

Apparatus, to insure proper break in of all components while still under warranty, shall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus to the City of Spokane Fire Department Maintenance Facility, and remain for a sufficient length of time to instruct fire personnel and maintenance staff, in the proper operation, care and maintenance of the equipment delivered (minimum of 4 shifts).

2.05 INFORMATION REQUIRED

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

2.06 PERFORMANCE TESTS AND REQUIREMENTS

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

- A) The apparatus, when fully equipped and loaded, shall have not less than 25% nor more than 50% of the weight on the front axle, and not less than 50% nor more than 75% on the rear axle.
- B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.
- C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D) The apparatus, fully loaded, shall be capable of obtaining a speed of 65 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).
- E) The apparatus shall be able to from a standing start achieve and maintain a speed of at least 30 mph on any grade up to and including a 10 % grade.
- F) Final performance testing will occur at the Spokane Fire Department unless mutually agreed by the vendor and Spokane Fire Department to be tested at place of origin.

2.07 FAILURE TO MEET TEST

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

2.08 LIABILITY

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

2.09 VEHICLE STABILITY

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum height.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle load shall not be less than the minimum axle loads specified by the chassis manufacturer, under full load and all other loading conditions.

Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association.

2.10 INSURANCE REQUIREMENTS

During the term of the contract, the Contractor shall maintain in force at its own expense, each insurance noted below.

2.10.1 **WORKER'S COMPENSATION** insurance in compliance with RCW 51.12.020, which requires subject employers to provide workers' compensation coverage for all their subject workers. Employer's Liability or Stop Gap insurance for not less than \$1,000,000 each accident or disease.

2.10.2 **GENERAL LIABILITY** insurance on an occurrence basis, with a combined single limit of not less than \$5,000,000 each occurrence for Bodily Injury and Property Damage. It shall include, at least, Independent Contractors, Products and Completed Operations, Contractual Liability and Personal Injury Liability for the indemnity provided under this contract. It shall provide that City, and its agents, officers, and employees are Additional Insureds but only with respect to the Contractor's services to be provided under this contract.

2.10.3 **NOTICE OF CANCELLATION OR CHANGE.** There shall be no cancellation, material change, reduction of limits or intent not to renew the insurance coverage(s) without 30 days written notice from the Contractor or its insurer(s) to the City.

2.10.4 **CERTIFICATES OF INSURANCE.** As evidence of the insurance coverage's required by this contract, the Contractor shall furnish acceptable insurance certificates to the City at the time Contractor returns signed contracts. The certificate shall specify all of the parties who are Additional Insureds, will include applicable policy endorsements, will include the 30 day cancellation clause, and will include the deductible or retention level. Insuring companies or entities are subject to City acceptance. If requested, complete copies of insurance policies shall be provided to the City. The Contractor shall be financially responsible for all pertinent deductibles, self-insured retention's, and/or self-insurance.

2.11 SINGLE SOURCE MANUFACTURER

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

2.12 TABLE OF CONTENTS

A table of contents shall be provided with all proposals, for ease in locating items, which shall be provided by the bidder.

2.13 MAXIMUM OVERALL HEIGHT

The maximum overall height of the apparatus shall be 134.00".

2.14 APPROVAL DRAWING

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

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

2.15 WARRANTY

Each piece of new fire apparatus shall be warranted to be free from defects in materials or workmanship under normal use and service. Each manufacturer shall supply, as a part of their bid package, a copy of the warranty or warranties that they propose to provide, and in no case shall it be less than one (1) year on the entire apparatus from the date of final acceptance by the City.

All other warranties, as outlined in these specifications shall be provided in writing as a part of the bid package.

Failure to provide the warranties as outlined throughout these specifications shall be cause for rejection of the bid package.

I acknowledge receipt and compliance with the above special instructions.

FIRM _____

AUTHORIZED SIGNATURE _____

TITLE _____

Specifications

Bidder Complies

Supplied Exception

SECTION III. TRACTOR CHASSIS

The tractor chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The wheel base shall be the shortest available with the following specifications. Bidder will state actual wheel base and both wall to wall and curb to curb turning radius. WB_____ WWR_____ CCR_____.

3.01 SEATING CAPACITY

The seating capacity in the cab shall be six (6).

3.02 WHEELBASE

The wheelbase of the vehicle shall be no greater than 150 inches.

3.03 GVW RATING

The gross vehicle weight rating shall be a minimum of 65,740 lbs.

3.04 FRAME

The chassis frame should be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails should have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to a 10.75" over the rear axle. Each rail should have a section modulus of 25.99 in. sq., and a resisting bending moment (rbm) of 2,859,122 inch pounds over the critical regions of the frame assembly, with a section modulus of 18.96 in. sq. with an rbm of 2,085,803 inch pounds over the rear axle. The frame rails may be constructed of 110,000 psi yield strength heat treated .38" thick steel, with 3.50" wide flanges.

3.05 FRONT AXLE

The front axle should be a reverse "I" beam type with inclined king pins. It should be a Meritor™ axle, Model FL-943, with a minimum rated capacity of 18,740 pounds. The turning angle shall be 45 degrees or greater. A viewing window shall be provided on each side of the axle for checking the oil level.

3.06 STEERING CRAMP ANGLE CERTIFICATION

The fire apparatus manufacturer shall provide, at time of bid, a letter from an independent third party testing agency stating they approve the steering cramp angle.

3.07 ANGLE OF APPROACH AND DEPARTURES

The angle of approach and departure shall be at least 11 degrees or greater with the apparatus loaded. Bidder will state what both these angles actually are: Apr. _____ Dep. _____.

3.08 OIL SEALS

Oil seals shall be provided on the front axle.

3.09 SHOCK ABSORBERS

Heavy-duty telescoping shock absorbers shall be provided on the front suspension.

3.10 REAR AXLE

Preference will be given to bidder who can build apparatus with the rear axle being a single drive axle with a 27,000 pound capacity if vehicle can be built without exceeding Washington State's weight limit of 24,000 pounds for a single axle fully loaded with equipment, four (4) firefighters in the cab, and water tank full. A driver controlled differential lock mechanism shall be provided to lock differential when required.

Specifications	Bidder Complies	
	Supplied	Exception
<p>If this is not possible with our specifications then the rear axle shall be a tandem drive axle with a minimum fire/emergency rating of 40,000 pounds. An inter-axle differential, which divides torque evenly between axles, shall be provided with an activation switch and indicator light mounted on the cab instrument panel if chassis ends up with tandem drive axles. The Fire Department will accept bids both ways, but once again, preference will be given to a single axle design, along with other features of the apparatus.</p> <p>3.11 <u>TOP SPEED OF VEHICLE</u> A rear axle ratio shall be furnished to allow the vehicle to reach an approximate top speed of 65 MPH.</p> <p>3.12 <u>OIL SEALS</u> Oil seals shall be provided on the rear axle.</p> <p>3.13 <u>SUSPENSION</u> Front springs should be a heavy-duty taper leaf design, 54.00" long by 4.00" wide with a ground rating of 19,000 pounds.</p> <p>Kaiser spring pins shall be provided, with double "figure-eight" grease grooves and a layer of electroless nickel plating, 1.0 mil thick around the entire pin. The bushing that holds the spring pin in place shall also have a grease groove.</p> <p>3.14 <u>SUSPENSION, REAR</u> Rear suspension (if single drive) is to be semi-elliptical, 3.00" x 52.00", 12 leaf main with a ground of 27,000 pounds. Spring hangers to be castings with provisions for lubrication. The grease fittings to be 90 degree type and shall be accessible without removing the wheels or cutting any sheet metal. Two top leaves to wrap the forward spring hanger pin and the top leaf to wrap the rear spring hanger pin on both the front and rear suspensions.</p> <p>Rear suspension (if tandem drive) is to be the Hendrickson RT-463 steel spring system with an equalizing beam design that distributes the load equally between the two axles. Ground rating of the suspension shall be 46,000 pounds.</p> <p>Kaiser spring pins shall be provided, with double "figure-eight" grease grooves and a layer of electroless nickel plating, 1.0 mil thick around the entire pin. The bushing that holds the spring pin in place shall also have a grease groove.</p> <p>3.15 <u>FIFTH WHEEL</u> The fifth wheel shall be designed to allow the tiller trailer to pivot fore & aft and be rotated. A fifth wheel lockout system shall be provided to limit motion during aerial operations. The fifth wheel lockout system, when activated, shall prevent movement between the upper and lower plates of the fifth wheel assembly. In the normal road travel condition the cylinder mounted solenoid valves shall be open and shall allow transfer of oil between the front and rear pair of cylinders. When the stabilizers are in their proper supporting position and as the aerial leaves the boom support, the solenoid valves shall close. The closed valves shall allow no oil to be transferred and the fifth wheel assembly shall become rigid.</p> <p>3.16 <u>FENDER PANELS</u> The chassis behind the cab shall be assembled with fender panels over the wheels, running boards and steps for access to the turntable and decking over the frame rails.</p> <p>The fender panels shall be fabricated with painted aluminum and be fabricated with .125", 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi.. Fender design shall be provided for prevention of pockets and ease of maintenance.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The area over the frame rails between the cab and fifth wheel shall be covered with aluminum treadplate to serve as a walkway area. The walkway area shall be properly reinforced with a steel substructure attached to the frame rails.</p> <p>Running boards shall be installed on each side directly behind the cab for access to the walkway area behind the cab and the turntable. The running boards shall be covered with aluminum treadplate.</p> <p>3.17 <u>ANTI-LOCK BRAKE SYSTEM</u> The vehicle shall be equipped with a Wabco anti-lock braking system. The ABS shall provide anti-lock braking control on the front, rear drive wheels and the tiller wheels. It shall be a digitally controlled system that utilizes microprocessor technology to control the anti-lock braking system. Each wheel is shall be monitored by the system. When any particular wheel begins to lockup, a signal is shall be sent to the control unit. This control unit then shall reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.</p> <p>3.18 <u>AUTOMATIC TRACTION CONTROL</u> An anti-slip feature shall be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock, which shall not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. A "mud/snow" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.</p> <p>3.19 <u>BRAKES</u> The service brake system shall be full air type.</p> <p>The front brakes shall be 16.50" x 6.00" cam operated "Q" series, with automatic slack adjusters.</p> <p>The rear brakes shall be 16.50" x 7.00" cam operated "Q" series, with automatic slack adjusters.</p> <p>The spring brakes shall hold a fully loaded apparatus (full GVWR) on at least a 20 percent grade.</p> <p>3.20 <u>ENGINE BRAKE</u> A Jacobs engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary-braking device, when required.</p> <p>3.21 <u>AIR COMPRESSOR, BRAKE SYSTEM</u> The air compressor shall be a Bendix TRU-FLO 750 with 16.0 cubic feet per minute output. The output flow of the engine air compressor varies with engine RPM. Full compressor output is only achieved at governed engine speed. Generators, pumps and other PTO driven options may limit engine speed. If possible we would prefer that the compressor be plumbed to the engine filtration system and not require a separate filter.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.22 <u>BRAKE SYSTEM</u> The brake system shall include:</p> <ul style="list-style-type: none"> - Bendix-Westinghouse dual brake treadle valve with vinyl covered foot surface. - A heated automatic moisture ejector on air dryer. - Total air system capacity of 6,653 cubic inch, with an automatic drain valve for the wet tank and manual drain valves for the rest. - Two (2) air pressure gauges with red warning light and audible alarm, that activates when air pressure falls below 60 psi. - MGM spring set parking brake system. - Parking brake operated by a Bendix-Westinghouse PP-1 control valve. The parking brake control shall be located where it is readily accessible to both the driver and officer while seated and belted. A secondary means of applying the parking brake from the officer's side shall be considered compliant. - A parking "brake on" indicator light on instrument panel. - Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall be provided with an automatic spring brake application at 40 psi. - Midland Pure Air Plus air dryer. Air dryer shall consist of the following: <ul style="list-style-type: none"> - Spin-on desiccant cartridge. - Coalescing filter that's replaceable and separate from the spin-on desiccant can. - 12 volt heated moisture ejector. <p>3.23 <u>ALL WHEEL LOCK-UP</u> An additional all wheel lock-up system shall be installed which applies air to the front brakes only. The standard spring brake control valve system will also be used for the rear.</p> <p>3.24 <u>BRAKE LINES</u> Color coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.</p> <p>3.25 <u>AIR TANK, ADDITIONAL</u> An additional air tank with 1454 cubic inch displacement shall be provided to increase the capacity of the air system. This tank shall be dedicated for air horn use.</p> <p>3.26 <u>AIR INLET WITH AUTOMATIC EJECT</u> One (1) air inlet with Kussmaul Air Eject shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall automatically disconnect the airline when the truck is started. It shall be equipped with a male coupling and be located on the driver side rear bulkhead of body. A shut off valve and check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female coupling shall also be provided with the loose equipment.</p>		

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	Supplied	Exception
<p>3.27 <u>ENGINE</u> A Detroit Diesel electronic engine as described below shall power the chassis:</p> <ul style="list-style-type: none"> - Model: Series 60, 12.7L - Number of Cylinders: Six (6) - Bore and Stroke: 5.12" x 6.30" - Displacement: 775 cubic inches - Torque: 1550 at 1200 rpm - Compression Ratio: 15.0:1 - Governed rpm: 2100 <p>Standard equipment on the engine shall include the following:</p> <ul style="list-style-type: none"> - Air Cleaner: Farr or equal. - Fuel Filters: Dual, with check valve, primary filter shall be a Racor fuel water separator. - Coolant Filter: Spin-on with shut off valves (precharged with coolant inhibitor). - Governor: Limiting speed type. - Injectors: Cam operated, unit type, clean tip. - Lube Oil Cooler. - Lube Oil Filter: Full flow. - Starting Motor: 12-volt. - Turbocharger. - Air to Air Aftercooled. <p>3.28 <u>ENGINE INSTALLATION CERTIFICATION</u> The fire apparatus manufacturer shall provide, at the time of bid, a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The approval of the engine installation shall be at full horsepower rating in a continuous duty application under all operating conditions, including on the road. No type of automatic horsepower reduction feature shall be allowed.</p> <p>There shall be no exception to any portion of the engine installation certification. Nonconformance shall lead to immediate rejection of bid.</p> <p>3.29 <u>SCANN</u> A SCANN with gradeabilities at: 0, 5, 10, 15% grades using the vehicle's estimated weight and power train as proposed, will be included in each bid proposal.</p> <p>3.30 <u>ENGINE AIR INTAKE</u> The air intake with Ember Separator shall be mounted high on the passenger side of cab, to the front of crew cab door to prevent road dirt and recirculating hot air from entering the engine.</p> <p>The Ember Separator should be easily accessible through a hinged stainless steel grille, with one (1) flush quarter turn latch.</p> <p>3.31 <u>EXHAUST SYSTEM</u> The exhaust system shall be 5.00" diameter.</p> <p>The exhaust shall exit on the right side ahead of the rear wheels, and be configured for a Plymovent nozzle.</p> <p>A heat deflector shield shall be provided where the tail pipe is routed under any side compartments.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.32 <u>MANUAL FLUID CHECK ACCESS</u> Engine and transmission dipsticks shall be extended up to an access door inside the cab. The engine oil dipstick shall allow for check only, and the transmission dipstick shall allow for check and fill.</p> <p>An additional tube shall be provided for engine oil fill, located next to the engine check dipstick.</p> <p>The access door shall be located on the engine tunnel.</p> <p>The door shall be insulated with the same material used in the engine tunnel area, and have a rubber seal.</p> <p>The rear facing section shall have an aluminum diamond plate covering for protection.</p> <p>Two (2) flush latches shall be provided on the access door.</p> <p>3.33 <u>FUEL SEPARATOR</u> The engine shall be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters. This shall include a fuel re-prime button.</p> <p>A warning light and alarm shall be provided on the cab instrument panel to indicate water in the fuel system.</p> <p>3.34 <u>HIGH IDLE</u> A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset (1000) engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK To Engage High Idle".</p> <p>3.35 <u>COOLANT LINES</u> Gates, or Goodyear, rubber hose shall be used for all engine coolant lines installed by the chassis manufacturer.</p> <p>Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p> <p>3.36 <u>RADIATOR</u> Radiator and the complete cooling system shall meet or exceed NFPA cooling system standards. Cooling system capacity shall exceed all cooling requirements specified by the engine manufacturer under all truck operating conditions. It shall have a built-in low coolant sight glass and an electronically controlled low coolant display mounted on the instrument panel. An integral surge and deaeration tank shall be provided to optimize the cooling system for all operating conditions.</p> <p>The cooling system shall be designed to maintain pressure at nine (9) psi for maximum dissipation. A drain valve shall be located at the lowest point of the cooling system and at other points to permit complete flushing of the coolant from the system. A heavy-duty fan, shrouded by recirculation shields that permit only fresh cool air through the radiator, shall draw in cooling air.</p>		

Specifications

Bidder Complies

Supplied	Exception
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Radiator shall be of the serpentine design and bonded together by the patented "beta-weld" process for increased strength, longer road life and solder-bloom corrosion protection. Radiator shall be mounted in a manner to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. Radiator core shall be compatible with commercial antifreeze solutions. Cooling system shall exhibit rapid warm-up without use of radiator shutters.

Specifications	Bidder Complies	
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<p>3.37 <u>FUEL TANK</u> A 65-gallon fuel tank shall be provided and mounted at rear of chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent.</p> <p>A .75" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Diesel Fuel Only".</p> <p>A .50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95% of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer. Adequate access shall be provided to remove fuel sender without removing or lowering fuel tank.</p> <p>3.38 <u>FUEL PUMP</u> A fuel pump for priming the fuel system shall be provided.</p> <p>3.39 <u>FUEL SHUTOFF</u> A shutoff valve shall be installed in the fuel line, near the filter to assist in servicing the fuel filter.</p> <p>3.40 <u>TRANSMISSION</u> An Allison, model EVS4000P, electronic, torque converting, automatic transmission shall be provided.</p> <p>Two (2) PTO openings shall be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).</p> <p>A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.</p> <p>A five (5)-speed push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation. The transmission ratio shall be such that will give the optimal performance for this apparatus. Bidder shall provide the ratios on their bid sheet.</p> <p>3.41 <u>TRANSMISSION COOLER</u> A heavy duty transmission oil cooler that shall maintain a temperature in the transmission at or below the transmission manufacturer's maximum temperature rating under all conditions (with ambient temperatures between 32 deg. F to 110 deg. F) for which the apparatus is designed, shall be provided.</p> <p>3.42 <u>DRIVELINE</u> Drivelines shall be a heavy-duty metal tube and be equipped with Spicer 1810 universal joints.</p> <p>The shafts shall be dynamically balanced before installation.</p> <p>A splined slip joint shall be provided in each driveshaft, slip joint shall be coated with Glidecoat or equivalent.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.43 <u>STEERING</u> A Ross TAS-85 steering gear or equivalent, with integral heavy-duty power steering, shall be provided. The power steering system shall be designed to provide steering for both the tractor and trailer's steering.</p> <p>A letter from pump manufacturer, stating they approve of the hydraulic pump selection, its operating temperature and flow, shall be furnished with the bidder's proposal.</p> <p>The steering wheel shall be capable of tilting and telescoping.</p> <p>The front axle shall be equipped with a Ross power assist cylinder or equivalent, to aid in the steering of the apparatus.</p> <p>3.44 <u>TIRES</u> Front tires shall be Michelin radials 385/65R22.50, 18 ply "all position" XZY tread. The tires shall be <u>siped, balanced</u> and mounted on painted 22.50" x 12.25" steel disc-type wheels with a ten (10) stud, 11.25" bolt circle.</p> <p>Rear tires shall be four (4) Michelin radials 12R22.50, 16 ply "All Season Block"XDN for a single drive axle. The tires shall be mounted on painted 22.50" x 8.25" steel disc-type wheels with a ten (10)-stud 11.25" bolt circle.</p> <p>Rear tires shall be eight (8) Michelin radials 11R22.50, 16 ply "All Season Block" XDN tread for a tandem axle bid. The tires shall be mounted on painted 22.50" x 8.25" steel disc-type wheels with a ten (10)-stud 11.25" bolt circle.</p> <p>3.45 <u>LUG NUT COVERS</u> Chrome plated lug nut covers shall be installed on all lug nuts.</p> <p>3.46 <u>MUD FLAPS</u> Mud flaps shall be installed behind the front and rear wheels of the chassis and behind the rear tiller tires.</p> <p>3.47 <u>WHEEL CHOCKS</u> Four (4) Ziamatic SAC-44 space saving large aluminum folding wheel chocks shall be installed on the cab chassis, two (2) each side utilizing zinc-plated 16 gauge steel holders. The wheel chocks shall be in compliance with NFPA Standards 1901 and 1904 for the size tires utilized on the apparatus.</p> <p>3.48 <u>CAB</u> The cab shall be designed specifically for the fire service and manufactured by the chassis builder.</p> <p>Construction of the cab shall consist of 5052-.125" aluminum welded to extruded aluminum framing.</p> <p>The apparatus manufacturer shall build the cab in a facility located on the manufacturer's premises.</p> <p>The cab should be 96.00" wide, with an approximate interior width of 87.50".</p> <p>The overall height (cab roof to ground) shall be approximately 99.00".</p> <p>The cab roof shall have .125" aluminum treadplate installed in walkway paths.</p> <p>The floor to ceiling height inside the crew cab should be 52.50".</p>		

Specifications	Bidder Complies	
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<p>The crew cab floor shall measure 43.75" from rear wall to the backside of All steps shall provide adequate surface for stepping and shall be located in accordance to NFPA 1901 engine tunnel.</p> <p>The crew cab shall be of the totally enclosed design, with access doors constructed in the same manner as the driver and passenger doors.</p> <p>The cab shall be a full tilt cab style. The engine shall be easily accessible and capable of being removed with the cab tilted.</p> <p>The cab shall have three (3)-point rubber mounting and shall be tilted by a hydraulic pump connected to two (2) cab lift cylinders. The cab shall then be locked down by a two (2)-point automatic locking mechanism that actuates after the cab has been lowered.</p> <p>The cab access steps shall be 22.00" wide, crew cab shall be 21.50" wide x 8.00" minimum depth, located inside the door, protecting the step from weather elements.</p> <p>The inside cab steps shall not exceed 16.50" high.</p> <p>The crew cab entrance shall be a two (2) step design for easy access.</p> <p>A 20.00", slip resistant, handrail shall be provided adjacent to all door openings to assist entrance into the cab.</p> <p>A rubber covered handrail shall be provided inside each front cab door, adjacent to the door posts.</p> <p>The cab doors should be 35.00" wide x 69.00" high.</p> <p>The crew cab doors should be 34.25" wide x 69.00" high for easy entry, and located on the side of the cab.</p> <p>The cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of .125". The exterior skins shall be constructed from .090" aluminum.</p> <p>All cab and crew cab entry doors shall contain a conventional roll down window.</p> <p>Flush mounted, chrome plated paddle type door handle shall be provided on the exterior of the cab doors.</p> <p>All interior cab door handles shall also have flush paddle handles.</p> <p>The door hinge shall be a stainless steel piano type with a .25" pin.</p> <p>There shall be double automotive type rubber seals around the perimeter of the door framing and door edges to ensure a weather tight fit.</p> <p>Polished stainless steel scuffplates shall be installed on the inside of all cab doors, extending from the bottom of the door to 9.00" above the floor line.</p> <p>Cab door panels shall be removable without disconnecting door and window mechanisms.</p> <p>Engine hood sidewalls should be constructed of .50" aluminum; top shall be constructed of .19" aluminum and shall be tapered at top to allow for more driver and passenger elbowroom.</p>		

Specifications	Bidder Complies	
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<p>Insulation and whatever other materials needed to bring the DBA levels within the limits specified in these specs shall be provided.</p> <p>The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the DBA level within the limits stated in the current NFPA series 1901 pamphlet.</p> <p>Full circular inner fender liners, in the wheel wells, shall be provided.</p> <p>The outside rear wall of the crew cab shall be covered with a bright aluminum treadplate panel.</p> <p>A curved, safety glass windshield shall be provided, with over 2,754 square inches of clear viewing area.</p> <p>The cab windshield shall have bright trim inserts in the rubber molding holding the glass in place.</p> <p>All cab glass shall be tinted.</p> <p>Economical windshield replacement glass shall be readily available from local auto glass suppliers. Bidder shall state part number other than apparatus manufacturer's number.</p> <p>Two (2) smoked Lexan sunvisors, 8.75" x 31.00" long, shall be provided. The sunvisors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p>Two (2) two-speed w/intermittent electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements.</p> <p>The washer reservoir shall be able to be filled without raising the cab.</p> <p>The cab and crew cab floor areas shall be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.</p> <p>The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a .25" thick closed cell foam (no water absorption), which offers a sound dampening material for reducing sound levels.</p> <p>3.49 <u>CREW CAB WINDOWS</u> On each side of the crew cab, a window with tinted glass shall be provided.</p> <p>The rear wall of the crew cab shall have two (2) windows, each being 8.00" wide x 14.00" high.</p> <p>3.50 <u>ELECTRIC WINDOWS (cab doors)</u> Both front cab doors shall be equipped with electric operated windows.</p> <p>The control for each door shall be an automotive style located on the inside door panel within easy reach of the driver and officer.</p> <p>The driver shall also have a control to operate the passenger's side window, a single control shall be located on the driver's lower instrument panel.</p> <p>3.51 <u>ELECTRIC WINDOWS(crew cab doors)</u> Both crew cab doors shall be equipped with electric operated windows.</p> <p>The control shall be an automotive style located on the inside door panel within easy reach of the crew cab passengers.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.52 <u>CAB DOOR LOCKS</u> All cab doors shall be furnished with lockable exterior handles. All the doors shall be keyed alike.</p> <p>3.53 <u>FENDER CROWNS</u> Stainless steel fender crowns shall be installed at cab wheel openings.</p> <p>3.54 <u>MAP BOX</u> A map box with three bins, open from top, shall be installed. The size and location shall be determined at a later date. The map box shall be constructed of .125" aluminum and shall be painted to match the cab interior. This box shall be made so that it slopes at an angle and not straight up and down.</p> <p>3.55 <u>CAB LIFT</u> A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves. An 8' remote control shall be provided for raising and lowering the cab. The remote control shall be stored in the cab. The receptacle for the remote control shall be located on the front face of bumper, in the standard location on passenger side.</p> <p>Cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.</p> <p>The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.</p> <p>A redundant mechanical stay arm shall automatically be engaged once the cab has been fully raised. Before lowering the cab, this device must be disengaged using the stay arm control located near the cab raise/lower switch.</p> <p>3.56 <u>INTERLOCK, CAB LIFT TO PARKING BRAKE</u> The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position, if the parking brake is released the cab tilt mechanism shall be disabled.</p> <p>3.57 <u>MIRRORS</u> Velvac, model 2025, low mount chrome mirrors shall be mounted, one (1) on each of the cab door's side. The mirror shall include a replaceable 62.00 sq. inch flat glass and a 30 sq. inch convex glass. Overall mirror dimensions shall be 8.50" wide x 13.75" high. Mirror head shall have a highly polished chrome finish.</p> <p>Both flat mirror heads shall be adjustable by an electric remote control switch inside the cab within easy reach of the driver. Convex mirror heads shall be adjusted manually.</p> <p>Both mirror heads shall also be heated with the control within easy reach of the driver.</p> <p>3.58 <u>BUMPER</u> A one (1) piece, ten (10) gauge, 304-2B type polished stainless steel bumper, a minimum 10.00" high shall be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength. The bumper shall be extended 10.00" from front face of cab.</p> <p>3.59 <u>GRAVEL PAN</u> A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face.</p>		

Specifications	Bidder Complies	
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<p>3.60 <u>TOW HOOKS</u> One (1) chromed steel tow hook and one (1) chromed steel eye shall be installed under the bumper and attached to the front frame members.</p> <p>3.61 <u>MOLDING (on sides of cab)</u> Chrome molding shall be provided on both sides of cab.</p> <p>3.62 <u>CAB INTERIOR</u> The cab dash fascias shall be a wrap-around design to provide easy access of controls and should be constructed out of high impact ABS plastic.</p> <p>The officer side dash, engine tunnel and upper door liners shall be padded and covered with 46 ounce leather grain vinyl resistant to oil, grease and mildew.</p> <p>The headliner shall be installed in both forward and rear cab sections. Headliner material shall be vinyl. A sound barrier shall be part of its composition. Material shall be installed on aluminum sheet and securely fastened to interior cab ceiling.</p> <p>Forward portion of cab headliner shall provide easy access for servicing electrical wiring or for other maintenance needs without removing the entire unit.</p> <p>3.63 <u>CAB INTERIOR UPHOLSTERY</u> The cab interior upholstery shall be black vinyl.</p> <p>3.64 <u>INTERIOR PAINT (Cab)</u> The cab interior metal surfaces shall be painted black, vinyl texture paint.</p> <p>3.65 <u>CAB SEATING</u> A Seats Inc. #911 Magnum 100 "knee-action" air-ride style seat with high-back shall be provided in the cab for the driver.</p> <p>The seat shall have 3.00" of height adjustment, in addition to the "knee-action" suspension.</p> <p>The driver's seat shall be furnished with three (3)-point shoulder type seat belt. The seat belt shall be furnished with automatic retractor. Extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p> <p>A Seats Inc. #911 "scissor-action" air ride high back style seat shall be provided in the cab for the officer.</p> <p>The officer's seat shall be furnished with three (3)-point shoulder type seat belt. The seat belt shall be furnished with automatic retractor. Extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p> <p>3.66 <u>SEATING (Forward Facing Crew Cab)</u> Two (2) forward facing, Seats Incorporated 911 non-SCBA, seats shall be provided in the center positions, against the cab rear wall.</p> <p>Seats shall be furnished with three (3) point shoulder type seat belts. The seat belts shall be furnished with automatic retractors. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.67 <u>SEAT UPHOLSTERY</u> All seat upholstery shall be 46 oz. leather grain black vinyl material resistant to oil, grease and mildew The cab shall have six (6) seating positions.</p> <p>3.68 <u>SHOULDER HARNESS HEIGHT ADJUSTMENT</u> All seating positions furnished with three (3)-point shoulder type seat belts, shall include a ten (10) position height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter. The ten (10) positions are in increments of .75 for a total adjustment travel of 7.50.</p> <p>3.69 <u>FOLD UP SEATS</u> In addition to the stationary crew cab seats two (2) fold up seats with retractable 3 point seat belts shall be provided on the rear wall in the outboard positions.</p> <p>The seats shall be constructed of a heavy grade vinyl over foam rubber and shall have the bottom covered with brushed stainless steel for a pleasant appearance when the seat is in the up position.</p> <p>3.70 <u>ENGINE COMPARTMENT LIGHT</u> An engine compartment light shall be installed under the engine hood, of which the switch is an integral part. Light shall have a .125" diameter deep hole in its lens to prevent moisture retention.</p> <p>3.71 <u>CAB INTERIOR LIGHTING</u> Auxiliary lights shall be provided in the cab and consisting of:</p> <p>Two (2) Weldon, Model 8081-6978-68, Red/Clear dome lights located one (1) each side, controlled by the following: Clear forward light controlled by the door switch and the lens switch. Red rearward light controlled by the lens switch.</p> <p>Two (2) Adjustable Map Lights: With switches mounted on the cab ceiling and one (1) map light with an 18.00" long flexible goose neck and toggle switch control. To be located on the dash in front of the officer shall be provided. This light shall be provided with a red filter that easily slides over the clear lamp for night vision.</p> <p>- A Courtesy Light at Each Door Opening: Controlled by automatic door switches.</p> <p>3.72 <u>CREW CAB INTERIOR LIGHTING</u> Auxiliary lights shall be provided in the crew cab and consist of:</p> <p>Two (2) Weldon, Model 8081-6978-68, Red/Clear dome lights located one (1) each side, controlled by the following: Clear forward light controlled by the door switch and the lens switch. Red rearward light controlled by the lens switch.</p> <p>- A courtesy light at each door opening, controlled by automatic door switches.</p> <p>3.73 <u>CAB HEATER</u> There shall be a 40,000 BTU heater in the cab located below the right side cab dash.</p> <p>The heater/defroster ventilation shall be built into the design of the cab dash instrument panel.</p> <p>The heater ducts shall be vented in a manner to provide heat directed towards the officer and the driver.</p> <p>The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows.</p>		

Specifications	Bidder Complies	
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<p>Heater defroster controls shall be located on the cab dash within easy reach of the driver.</p> <p>3.74 <u>CREW CAB HEATER</u> An auxiliary heater with 50,000 BTU shall be provided inside the crew cab. The heater shall have a three (3) speed blower, and temperature controls located adjacent to the heater.</p> <p>Heater shall be mounted in seat riser.</p> <p>3.75 <u>DEFFOGER FANS</u> Two individually switched all metal construction 6" windshield defogger fans shall be installed and the location will be determined at a latter date.</p> <p>3.76 <u>AIR CONDITIONING</u> A high performance air conditioning system shall be furnished inside the cab and crew cab.</p> <p>The air conditioning system shall perform as follows:</p> <p>In 100 degree Fahrenheit ambient temperature with 50 percent relative humidity and at maximum compressor speed, the cab and crew cab shall cool down to 75 degrees Fahrenheit within 30 minutes. Actual test results from the manufacturer of the air conditioning system, verifying this performance requirement, shall be submitted with bid.</p> <p>A 19.0 cubic inch compressor shall be installed on the engine.</p> <p>A roof-mounted condenser, with adequate BTU to meet the performance specification, shall be installed on the cab roof.</p> <p>Two (2) evaporator units shall be installed in the cab, located in the following locations:</p> <ul style="list-style-type: none"> - One (1) in the cab dash, just to the front of the officer. - One (1) in the crew cab, mounted to ceiling. <p>The evaporator units shall have an adequate BTU rating to meet the performance specifications.</p> <p>The air conditioning system shall have adjustable air outlets incorporated into the cab dash at both the driver and officer positions. The evaporator unit in the crew cab shall have adjustable air outlets located directly on the evaporator unit.</p> <p>The crew cab evaporator shall be provided with a drain pump, that shall pump all water out of the drain pan automatically.</p> <p>The air conditioner refrigerant shall be R-134A, installed by a certified technician.</p> <p>The cab and crew cab walls shall be insulated with 2.00" insulation where possible and the roof with 1.00" insulation to aid in cooling.</p> <p>The insulation shall be covered with a vinyl liner or a metal panel painted to match the interior.</p> <p>3.77 <u>CAB INSTRUMENTATION</u> Instrument panel controls and switches shall be identified as to function by imprinted word(s) adjacent to each item. Actuation of the headlight switch shall illuminate ("back-lite") wording for after dark operation. Turn signal and high beam headlight indicator lights shall also be provided.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>To avoid confusion, warning indicators shall be (where possible) the "dead front" type, meaning the warning light and word identification of same does not show up unless it is necessary.</p> <p>Instrument panel gauges, vehicle lights and other electrical accessories shall use proper size wiring to accommodate expected current load. Wiring shall meet SAE J-1128 specifications for high temperature (250 degrees Fahrenheit min.) conditions and be color, number and function coded.</p> <p>Cab instruments and controls shall be conveniently located within the forward cab section. Gauges and emergency vehicle switches shall be installed on removable panels for ease of service. The following gauges and controls shall be furnished:</p> <p>3.78 INFORMATION CENTER The information center may employ an electro-luminescent screen 5.87", with 1/4-VGA format to display super bright yellow text on a black background. The screen shall operate in temperatures from -40 to 185 degrees F. The screen may be encased in a diecast aluminum housing with eight (8) user interface switches. Every screen should include the time, (12 or 24 hour mode) and date.</p> <p>The information center shall be capable of monitoring the following chassis functions through a series of five (5) screens.</p> <p>It shall be possible to change the default screen with the push of a button.</p> <p>Drive Data screen shall include the following: RPM, revolutions per minute. Ambient Temperature.</p> <p>Aerial Data screen shall include the following with bar graphs: Fuel Level, E = empty to F = full with percent remaining in tank. Volts DC. Revolutions Per Minute RPM. Engine Oil Pressure. Engine Temperature.</p> <p>Door Status screen: Refer to the Messages, Open Door/Do Not Move Truck option.</p> <p>Fluid Levels screen: Fuel Level, percent remaining in fuel tank. Engine Coolant Level, OK or CHECK. Engine Oil Level, OK or CHECK. Power Steering Level, OK or CHECK. Hydraulic Oil Level, OK or CHECK.</p> <p>Load Manager screen: Refer the Load Manager/Sequencer option.</p> <p>The following screens shall be available with a menu button on the information center: Dimmer, percent bright of information center. Drive, chassis driving display. Fluids, fluid level display. Loads, load manager status. Aerial, Aerial panel display. Info, information list. Detailed list of indicators and warnings, including definition of each.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>Timer, stopwatch. Start, stop, reset and lap buttons. Set, time and date. About, system information Module number. Module type. Module version. Alarm, Buzzer Silence</p> <p>3.79 <u>GAUGES AND CONTROLS</u> The following gauges and controls shall be furnished:</p> <p>Voltmeter gauge, that includes the following: Low volts (11.8 VDC). Amber caution indicator light and an intermittent alarm. High volts (15 VDC). Amber caution indicator light and an intermittent alarm. Very low volts (11.3 V). Red warning indicator light and a steady tone alarm. Very high volts (16 VDC). Red warning indicator light and a steady tone alarm.</p> <p>Tachometer, that includes the following: Bar graph tachometer in the Drive screen of the information center.</p> <p>Fuel gauge, that includes the following: Bar graph on the Aerial Data screen. Percent available on the Fluid Levels screen of the information center. Low fuel (1/8 full) to activate an amber caution light and intermittent tone alarm Very low fuel (1/32 full) to activate a red warning light and steady tone alarm.</p> <p>Speedometer/odometer</p> <p>Engine Oil pressure Gauge, that includes the following: Bar graph on the Drive screen of the information screen. Low oil pressure to activate red warning light and a steady tone alarm.</p> <p>Air Pressure Gauges, that include the following: Two (2) gauges, one (1) for the front and the other for the rear brake pressure. Low air pressure to activate a red warning light and a steady tone alarm.</p> <p>Transmission Oil Temperature Gauge, that includes the following: High transmission oil temperature activates a red warning light. High transmission oil temperature activates a steady tone alarm.</p> <p>Engine Coolant Temperature Gauge, that includes the following: High engine temperature activates a red warning light. High engine temperature activates a steady tone alarm.</p> <p>Ignition Switch.</p> <p>Push Button Engine Start Control Switch.</p> <p>Heater and Defroster Controls.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>Headlight Switch.</p> <p>Self Canceling Turn Signal Switch (arm).</p> <p>Headlight Dimmer and Hazard Switch incorporated into turn signal arm.</p> <p>Emergency Warning Light Control Panel.</p> <p>Parking Brake Control.</p> <p>Front Brake Lock Control.</p> <p>Horn Button Control: Center of steering wheel.</p> <p>Center indicator light display includes the following if applicable:</p> <ul style="list-style-type: none"> Left Directional Activated (amber) Right Directional Activated (amber) High Beam Activated (blue) Seat Belt Not Buckled (red) Parking Brake(s) Engaged (Red) Load Manager Activated (green) ABS Activated (amber) ATC Activated (amber) Battery Switch On (green) Ignition Switch On (green) Aux Brake Activated (green) Transmission Temp High (amber) <p>- High Air Restriction Warning Indicator Light: LCD message with red warning indicator and audible alarm.</p> <p>- One two (2)-speed w/intermittent feature Windshield Wiper Control. The control shall also have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use</p> <ul style="list-style-type: none"> - Windshield Washer Controls. - 12V cigarette type power point. <p>- Hourmeter for aerial device that shall not register whenever the engine is not running.</p> <p>- Master Switch For Aerial Operating Electrical System.</p> <p>- PTO Switch for Aerial with Indicating Light.</p> <p>3.80 SWITCH PANELS</p> <p>The built-in emergency light switch panel shall have a master switch plus individual switches for selective control. The switch panel shall be located in the "overhead" position above the windshield on the driver's side to allow for easy access. Switches shall be rocker type with an indicator light, of which is an integral part of the switch.</p> <p>There shall be two (2) spare switches, The spare switches will be in the switch panel and marked as "spare switches", with an internal indicator light, installed in the light switch panel for future use.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.81 <u>ELECTRICAL POWER CONTROL SYSTEM</u> Electrical compartments shall be provided in the cab and on the chassis to house the vehicles electrical power and signal circuit protection and control components. The power and signal protection and control compartments shall contain circuit protection devices, power control devices, and vehicle interface modules. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray, EMI and RFI. Serviceable components shall be readily accessible.</p> <p>Circuit protection devices, which conform to SAE standard, shall be utilized to protect each circuit. All circuit protection devices shall be rated per NFPA requirements, sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting) or Type-II (manual resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554,1284,1888 or J2077 shall be utilized to protect electronic equipment.</p> <p>Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.</p> <p>A programmable logic controller shall be utilized to achieve advanced control of a fully computerized vehicle network system. The microprocessor-based system shall be extremely reliable, shock proof, vibration resistant and moisture proof. The system shall comply with all appropriate SAE J1939 recommended practices. The compactness of the system shall reduce overall components and wiring size thus the vehicles, weight.</p> <p>In addition to a visual message center, the logic controller shall activate status indicators and audible alarms designed to provide early warning of problems before they become critical. The programmable logic controller shall include the following attributes:</p> <ul style="list-style-type: none"> - On-board self-diagnostic messages and status indicators - Visual LED confirmation of communication at each Vehicle Interface Module, Switch Interface Module, Display Module, and ECU. - Automatic self-test on startup and during vehicle operation. - Eliminate control logic relays wherever possible. - Provide logic control for NFPA 1901 mandated safety interlocks and indicators. - Utilize system integration to eliminate redundant wiring and components. - Improve control system reliability by reducing relay and connector contacts. - Advanced electrical system load management and sequencing system. - Customized control software programmed to reflect the vehicles unique configuration. - Re-programmable to accommodate changes to the vehicles operating parameters. - Complete operating and troubleshooting manuals. <p>3.82 <u>CIRCUIT PROTECTION AND CONTROL DIAGRAM</u> Copies of all "Job Specific", input/output (I/O) sheets shall be provided with each chassis.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.83 <u>ON-BOARD ELECTRICAL SYSTEM DIAGNOSTICS</u> Advanced on-board diagnostic messages (or after market equivalent) shall be provided to support rapid troubleshooting of the electrical power and signal system. The diagnostic messages shall be displayed on a LCD message center located at the driver's position. The on-board message center shall include the following diagnostic information:</p> <ul style="list-style-type: none"> - Multiple diagnostics on display with text description. - Simplified warning indicators (from operators perspective). <p>3.84 <u>SERVICE AND MAINTENANCE DIAGNOSTICS</u> Advanced vehicle service and maintenance shall be assisted with a Windows-based software program shall be provided. The software shall provide advanced troubleshooting tools to service technicians equipped with an IBM compatible computer. The service and maintenance software shall include the following features:</p> <ul style="list-style-type: none"> - Easy to understand and use. - Ability to view system input/output (I/O) information. - Appropriate warnings regarding the location of welding-sensitive components. - A complete troubleshooting guide shall be provided with the vehicle. <p>3.85 <u>INDICATOR LIGHT AND ALARM PROVE-OUT</u> A system shall be provided which shall automatically test basic indicator lights and alarms located on the cab instrument panel.</p> <p>3.86 <u>VOLTAGE MONITOR SYSTEM</u> A voltage monitor system shall be provided to indicate the status of the battery system connected to the vehicles electrical load. The monitor system shall provide visual and audio warning when the system voltage is below optimum levels.</p> <p>The alarm shall activate if the system falls below 11.8 VDC for more than two (2) minutes.</p> <p>3.87 <u>POWER AND GROUND STUDS</u> Four (4) studs shall be provided in the electrical component compartment for two-way radio equipment. The studs shall consist of the following:</p> <ul style="list-style-type: none"> Stud #1 shall be 12-volt 40-amp, controlled by battery switch. Stud #2 shall be 12-volt 100-amp, ground. Stud #3 shall be 12-volt 60-amp, controlled by ignition switch. Stud #4 shall be 12-volt 60-amp, battery direct. <p>3.88 <u>EMI/RFI PROTECTION</u> The electrical system proposed shall reduce undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to insure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.</p> <p>The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing which has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.</p>		

Specifications	Bidder Complies	
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<p>Applying appropriate circuit designs and shielding shall control EMI/RFI susceptibility. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two (2)-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.</p> <p>3.89 RADIO ANTENNA MOUNT An antenna-mounting base, Model MATM with 17 feet of coax cable and weatherproof cap shall be provided for a two-way radio. The mount shall be located on the cab roof just to the rear of the officer seat. The cable shall be routed to the officer side seat box with enough cable for customer to route to the instrument panel if needed.</p> <p>3.90 MISC. MOUNTS A David Clark Headset system jumper cord (C38-75 or 100) shall be installed between the tractor cab and tiller cab for a future David Clark system installation. Bidder shall calculate in their option quote for the David Clark System a deduct for this cable already being installed.</p> <p>A Fire Department provided GPS antenna shall be mounted on the roof and the cable ran to the rear of the officer's seat and attached to the CDPD radio.</p> <p>A Fire Department provided CDPD radio shall be mounted behind the officer's seat and powered up for continuous power supply.</p> <p>A Fire Department provided docking station shall be installed and wired on the officer's side on the engine cowling's left corner. This will be powered by the 120V receptacle while on shore power and will have a relay installed to allow power from the 12V system once shore power is disconnected. Details can be obtained from the Fire Department. The docking station is for an Itronix Go Book model # IX250. The exact location shall be determined at pre-construction</p> <p>3.91 BATTERY SYSTEM A single starting system shall be provided, utilizing six (6)-Douglas 12 volt, 1000 CCA, 210 reserve capacity, high cycle, maintenance-free, group 31 batteries with a system rating of 6000 CCA at 0 degrees Fahrenheit and 1260 minutes of reserve capacity.</p> <p>An ignition switch and starter button shall be located on the instrument panel. The starter button shall be wired to a heavy-duty solenoid.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver the status of the battery system.</p> <p>3.92 MASTER BATTERY SWITCH A master battery switch, to activate the battery system, shall be provided inside the cab within easy reach of the driver.</p> <p>3.93 BATTERY COMPARTMENTS Batteries shall be placed on non-corrosive mats and be stored in well-ventilated compartments located under the cab.</p> <p>Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color-coded.</p> <p>Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>3.94 <u>JUMPER STUDS</u> One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the front side of battery box on drivers' side. This shall allow enough room for easy jumper cable access. A tag shall be provided for positive/negative terminals.</p> <p>3.95 <u>BATTERY CHARGER</u> A Kussmaul Autocharge 1200 battery charger shall be provided. A display bar graph, indicating the state of charge, shall be mounted on the driver side seat riser.</p> <p>The charger shall have a maximum output of 40 amps and a fully automatic regulation.</p> <p>The battery charger shall be wired to the 120-volt shoreline to activate automatically when power is connected.</p> <p>Battery charger location shall be determined at a later date</p> <p>3.96 <u>AUTO-EJECT RECEPTACLE</u> For the battery charger, one (1) receptacle shall be provided. The electrical receptacle shall be a 120-volt, 20 amp (NEMA 5-20P) and shall be wired to the battery charger with no less than 12-gauge wire that is properly supported and shielded from injury. The receptacle(s) shall be powered through a Kussmaul Super Auto-Eject 20 amp, with built in circuit interrupter, and shall be installed on the driver's side rear bulkhead next to the auto air-eject.</p> <p>The Super Auto-Eject shall be connected to the vehicle start buttons, so when the engine is started the Super Auto-Eject drives the shoreline connection from the inlet. The electrical inlet shall include a red spring loaded cover to prevent water from entering the receptacle when the shoreline is not connected. The unit shall be completely sealed to prevent contamination of the mechanism, insuring long life.</p> <p>3.97 <u>BATTERY TRAYS</u> Plastic battery trays with drain tubes shall be provided, for the batteries to sit in.</p> <p>3.98 <u>ALTERNATOR</u> A C.E. Niehoff, model N1222-5, alternator shall be provided. It shall have a rated output current of 290 amp as measured by SAE method J56. Also it shall have a custom three (3)-set point voltage regulator, manufactured by C. E. Niehoff. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p> <p>3.99 <u>ELECTRONIC LOAD MANAGER</u> An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reduces the electrical load in the event of a low voltage condition, and automatically restores the shed electrical loads when the low voltage condition expires. This ensures the integrity of the electrical system. The ELM shall monitor the vehicle's voltage while at the scene (parking brake applied).</p> <p>The system shall have the following features:</p> <ul style="list-style-type: none"> - System voltage monitoring. - Electrical load shedding. - Sixteen available load shedding levels. - Priority levels can be set for individual outputs. 		

Specifications	Bidder Complies	
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<p>- Individual switch "on" indicator to flash when the particular load has been shed.</p> <p>- Digital display shows system voltage.</p> <p>3.100 SEQUENCER A warning light sequencer shall be provided that automatically turns the emergency lights on and off in a preset sequence.</p> <p>The sequencer shall be wired in conjunction with the emergency master light switch.</p> <p>When the switch is activated the lights shall be turned on in sequence one by one at 1/2 second intervals thereby protecting the alternator from power surges. Sequenced light switch LED's shall flash while waiting for activation.</p> <p>When turned off the same process shall deactivate the warning lights in sequence to allow a gradual decrease in alternator output, rather than dumping the load.</p> <p>3.101 AMP DRAW REPORT The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.</p> <p>The manufacturer of the apparatus shall provide the following:</p> <ol style="list-style-type: none"> 1) Documentation of the electrical system performance tests. 2) A written load analysis, which shall include the following: <ol style="list-style-type: none"> A) The nameplate rating of the alternator. B) The alternator rating under the conditions specified per NFPA 1901, section 9-3.1. C) The minimum continuous load of each component that is specified per NFPA 1901, section 9-3.2. D) Additional loads that, when added to the minimum continuous load, determine the total connected load. E) Each individual intermittent load. <p>The bidder per NFPA 1901, section 9-15, shall provide all of the above listed items.</p> <p>3.102 EXTERIOR LIGHTING Exterior lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at time of proposal.</p> <p>Front headlights shall be halogen type, rectangular shaped, quad style mounted in chrome and polished aluminum housing. The system shall have daytime running lights.</p> <p>Seven (7) LED clearance and marker lights shall be installed across the leading edge of the cab.</p> <p>Two (2) Whelen Model 600 series OptiScene lights shall be installed on the apparatus. Lights shall include a chrome flange. Scene lights shall be mounted between the two-crew doors as high as possible. These lights are to give a forward angle directional scene light.</p>		

Specifications	Bidder Complies	
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<p>3.103 <u>DIRECTIONAL (Front)</u> Front turn signals shall be Whelen, Model 600 series LED amber turn lights (60A00TAR) housed in the same common bezel as the front warning light and be located above the headlights. In addition to the front facing directional, a K•D Lamp Company, Model 856-31055, marker/turn indicator shall be provided on each side of the cab.</p> <p>SECTION IV. <u>BODY & COMPARTMENTS</u></p> <p>Body and compartments should be fabricated of .125", 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi.</p> <p>Side compartments shall be an integral assembly with the rear fenders.</p> <p>Circular fender liners shall be provided for prevention of rust pockets and ease of maintenance.</p> <p>Compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip.</p> <p>Flanging the edges in 1.75" and bending out again .75" to form an angle shall frame the compartment door opening.</p> <p>Drip protection shall be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.</p> <p>The top of the compartment shall be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers shall have the corners "TIG" welded.</p> <p>Side compartment covers shall be separate from the compartment tops.</p> <p>Front facing compartment walls shall be covered with bright aluminum treadplate.</p> <p>All screws and bolts, which protrude into a compartment, shall have acorn nuts on the ends to prevent injury.</p> <p>4.01 <u>UNDERBODY SUPPORT SYSTEM</u> Due to the severe loading requirements of this apparatus, a method of body and compartment support suitable for the intended load shall be provided.</p> <p>The backbone of the support system shall be the chassis frame rails, which is the strongest component of the chassis and is designed for sustaining maximum loads.</p> <p>The support system shall include .375" thick steel vertical angle supports bolted to the chassis frame rails with .625" diameter bolts.</p> <p>Attached to the bottom of the steel vertical angles shall be horizontal angles, with gussets welded to the vertical members, which extend to the outside edge of the body.</p> <p>A steel frame shall be mounted on the top of these supports to create a "floating substructure" which shall result in a 500 pound equipment support rating per lower compartment.</p> <p>The floating substructure shall be separated from the horizontal members with neoprene elastomer isolators. These isolators shall reduce the natural flex stress of the chassis from being transmitted to the body.</p>		
Page 33		

Specifications	Bidder Complies	
	Supplied	Exception
<p>Isolators shall have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes.</p> <p>The neoprene isolators shall be installed in a modified "V" three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.</p> <p>4.02 <u>AGGRESSIVE WALKING SURFACE</u> All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of NFPA section 13-7.3.</p> <p>4.03 <u>LOUVERS</u> All body compartments shall have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers shall be formed into the metal and not added to the compartment as a separate plate.</p> <p>4.04 <u>TESTING OF BODY DESIGN</u> Body structural analysis should be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.</p> <p>Body shall be tested while loaded to its greatest in service weight.</p> <p>The criteria used during the testing procedure shall include:</p> <ul style="list-style-type: none"> - Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb. - Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions. - Driving the vehicle at 35 mph on a "washboard" road. - Driving the vehicle at 55 mph on a smooth road. - Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement. <p>Evidence of actual testing techniques shall be made available upon request.</p> <p>4.05 <u>KEYED LOCK(S)</u> A keyed lock shall be furnished for thirteen (13) compartment doors. All compartments shall be provided with locks and keyed alike.</p> <p>4.06 <u>COMPARTMENTS, DRIVER'S SIDE</u> Driver side compartments should consist of the following approximate dimensions and descriptions:</p> <p>Two (2) compartments shall be provided in the front body section on the driver side. Each compartment shall be full-height.</p> <p>The forward compartment shall be 47.13" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>The rear compartment shall be 44.50" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The upper 38.75" of each compartment shall be transverse to the passenger side.</p> <p>Both compartments shall have double doors.</p> <p>Two (2) compartments shall be provided in the center body section on the driver side. Each compartment shall be full-height.</p> <p>The forward compartment shall be 47.13" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>The upper 38.75" of the forward compartment shall be transverse to the passenger side.</p> <p>The rear compartment shall be 44.50" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>Both compartments shall have double doors.</p> <p>Two (2) compartments shall be provided in the rear body section on the driver's side.</p> <p>There shall be a compartment directly over this one with a minimum inside dimension with the doors closed of 9".</p> <p>The rearward compartment shall be 49.00" wide x 24.00" high x 12.00" deep with a door opening of 44.50" wide x 19.50" high. This compartment shall be located behind the rear wheels.</p> <p>There shall be a compartment directly over this one with a minimum inside dimension with the doors closed of 9".</p> <p>There shall be a compartment directly over the tiller axle with a minimum inside dimension with the doors closed of 9". This compartment shall also have two (2) horizontal tracks for mounting SCBA brackets.</p> <p>All compartments shall have double doors.</p> <p>4.07 COMPARTMENTS, PASSENGER'S SIDE Passenger side compartments should consist of the following approximate dimensions and descriptions:</p> <p>Two (2) compartments shall be provided in the front body section on the driver side. Each compartment shall be full-height.</p> <p>The forward compartment shall be 47.13" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>The rear compartment shall be 44.50" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>The upper 38.75" of each compartment shall be transverse to the driver's side.</p> <p>Both compartments shall have double doors.</p> <p>Two (2) compartments shall be provided in the center body section on the passenger side. Each compartment shall be full-height.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The forward compartment shall be 47.13" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>The upper 38.75" of the forward compartment shall be transverse to the driver's side.</p> <p>The rear compartment shall be 44.50" wide x 55.63" high x 24.50" deep with a door opening of 40.00" wide x 51.00" high.</p> <p>Both compartments shall have double doors.</p> <p>Two (2) compartments shall be provided in the rear body section on the passenger side.</p> <p>The forward compartment shall be 69.00" wide x 26.63" high x 24.50" deep in the lower 24.00" of the compartment and 12.00" deep in the remaining upper portion, with a door opening of 64.50" wide x 22.00" high. This compartment shall be located ahead of the rear wheels.</p> <p>There shall be a compartment directly over this one with a minimum inside dimension with the doors closed of 9". This compartment shall two (2) vertical tracks for future shelves.</p> <p>The rearward compartment shall be 49.00" wide x 24.00" high x 12.00" deep with a door opening of 44.50" wide x 19.50" high. This compartment shall be located behind the rear wheels.</p> <p>There shall be a compartment directly over this one with a minimum inside dimension with the doors closed of 9". This compartment shall also have two (2) horizontal tracks for mounting SCBA brackets and two (2) vertical tracks for future shelves.</p> <p>There shall be a compartment directly over the tiller axle with a minimum inside dimension with the doors closed of 9". This compartment shall also have two (2) horizontal tracks for mounting SCBA brackets.</p> <p>All compartments shall have double doors.</p> <p>4.08 <u>DOORS, SIDE COMPARTMENT</u></p> <p>All hinged compartment doors shall be lap style with double panel construction and shall be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement shall be installed between the outer and interior panels.</p> <p>Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel, to ensure a weather-resisting compartment.</p> <p>All compartment doors shall have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with E-Zinc plated fasteners. (Hinges, which are welded on, shall not be acceptable).</p> <p>All door lock mechanisms shall be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.</p> <p>Doors shall be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks. All locks shall be keyed alike and we would prefer if all of them were keyed to CH1250 if possible.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>To prevent corrosion caused by dissimilar metals, compartment door handles shall not be attached to outer door panel with screws. A rubber gasket shall be provided between the "D" ring handle and the door.</p> <p>4.09 <u>COMPARTMENT, REAR</u> A vertical hinged double door compartment at the rear shall be provided. Interior dimensions of this compartment shall be such to accommodate all the ground ladders and pike poles listed in these specs. This shall be the ladder storage compartment.</p> <p>4.10 <u>BACKBOARD STORAGE COMPARTMENT</u> A backboard compartment shall be provided above the rear stabilizers and underneath the aerial directly in front of the hose tray. Each side shall have an aluminum treadplate door. The opening for this compartment must be at least 19.00" wide x 3.00" high x 74.00" deep to accommodate our backboard. Bidder shall state if the backboards can be located in the ladder storage rack and what the savings will be by doing so.</p> <p>4.11 <u>COMPARTMENT MATTING</u> Black rubber Dri-Deck shall be provided in all compartments and in all shelves.</p> <p>The Dri-Deck shall be .562" thick with holes in the decking to allow air to flow.</p> <p>4.12 <u>MOUNTING TRACKS</u> There shall be a track for mounting shelf(s) in all compartments with the exception of the two (2) compartments over the tiller axle. These tracks shall be installed vertically to support the adjustable shelf(s) and run the full usable height of the.</p> <p>4.13 <u>SLIDE OUT TOOL BOARD</u> Two (2) slide out aluminum tool boards shall be provided.</p> <p>It shall be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.</p> <p>A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard.</p> <p>The tool boards shall be mounted on an adjustable two way slide out track which shall be pre-spaced 8 " from the forward wall and 8" from each other and 8" from the rear tray.</p> <p>Automatic locks shall be provided for both the in and out board positions.</p> <p>The dimensions of the tool board shall be 85.00" long and as high as possible for it to be able to slide out of this compartment.</p> <p>Tool board shall slide out to either side of the vehicle two-thirds of its length.</p> <p>A total of two (2) shall be provided in the most forward compartment.</p> <p>4.14 <u>ONE WAY UTILITY TRAY</u> A slide-out utility type tray shall be provided.</p> <p>The capacity rating shall be 500 pounds minimum, in the extended position.</p> <p>Interior shelf dimensions shall be as long as possible (which may extend past the center line) x 3.00" deep x as wide (<u>full width</u>) the opening it serves will allow.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The tray shall slide out in one (1) direction only; two-thirds of its length.</p> <p>The vertical location of the tray, within the compartment, shall be adjustable.</p> <p>The construction shall consist of .188" thick aluminum for the tray bottom and end, and special aluminum extrusions for the tray sides, front and tracks.</p> <p>The corners shall be welded to form a rigid unit.</p> <p>The tray shall be supported with a minimum of four (4) ball bearing rollers; each rated for a minimum 415 pound load.</p> <p>Automatic locks shall be provided for both the in and out tray positions.</p> <p>There shall be four (4) provided.</p> <p>The one-way slide-out tray will be in the fourth compartment from the most forward compartment on the right and left side and shall be equally spaced (two each side).</p> <p>4.15 FLOOR MOUNTED TRAYS Ten (10) floor mounted slide-out trays shall be provided.</p> <p>The capacity rating shall be 500 pounds minimum in the extended position.</p> <p>The construction shall consist of .188" thick aluminum formed to provide a 2.00" high wall around the perimeter.</p> <p>Corners shall be welded to form a rigid unit.</p> <p>Slide mechanisms shall have ball bearings for ease of operation and years of dependable service.</p> <p>Automatic locks shall be provided for both the in and out tray positions.</p> <p>The lock trip mechanism shall be located at the front of the tray and shall be easily operated with a gloved hand.</p> <p>A compartment substructure shall be fabricated from steel angle to support the body under the compartment floor.</p> <p>The substructure shall be bolted to the chassis frame to transfer much of the load from the body to the chassis and therefore reduce body stress.</p> <p>The slide-out trays will be one (1) each in all of the compartments except the most forward compartment.</p> <p>4.16 ADJUSTABLE SHELVES There shall be four (4) shelves, with a minimum capacity of 215 pounds provided. The shelf construction shall consist of .125" pan-shaped aluminum with 2.00" sides. Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.</p> <p>The location of the shelf/shelves shall be one (1) each in the upper compartment, directly in front of the tiller axle and directly after the tiller axle.</p>		

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	Supplied	Exception
<p>4.17 <u>TWO-WAY UTILITY TRAY</u> Six (6) two-way slide-out utility type trays shall be provided.</p> <p>The capacity rating shall be 500 pounds minimum in the extended position.</p> <p>Interior tray dimensions shall be 85.00" long x 3.00" deep x as wide as possible for the compartment.</p> <p>Tray shall slide out to either side of the vehicle; two-thirds of its length.</p> <p>The vertical location of the tray within the compartment shall be adjustable.</p> <p>The construction shall consist of .188" thick aluminum for the tray bottom, and special aluminum extrusions for the tray sides, end, and tracks.</p> <p>Corners shall be welded to form a rigid unit.</p> <p>Tray shall be supported with a minimum of six (6) ball bearing rollers; each rated for a minimum 500 pound load.</p> <p>Automatic locks shall be provided for both the in and out tray positions.</p> <p>The two-way slide adjustable trays will transverse the front compartment three (3) compartments (two in each compartment equally spaced).</p> <p>4.18 <u>BACK-UP ALARM</u> An ECCO, Model SA917-PM2, solid state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum five (5) dba above surrounding environmental noise levels.</p> <p>4.19 <u>CAFS FOAM SYSTEM</u> A sixty (60) gallon Tri-Max Foam or Ansul tank with a three (3) inch drain valve and system shall be installed. This system shall be pre-plumbed to an air cascade system to provide air to charge the tank (of sufficient size for one full discharge). Provisions shall be provided to remote fill (with a pump) the tank from the driver's side compartment over the first compartment on the trailer section. This shall also be the area for turning on the air for charging the system and shall accommodate all other components necessary for operation. The system shall discharge into the hose tray in front of the trailer. If for some reason it is totally impossible for the sixty gallon system, bidder shall state such fact, and quote the a smaller unit, but preference will be given to bidder who can provide the sixty gallon unit. It is also preferred that the tank be of a horizontal rather than vertical configuration for storage savings.</p> <p>4.20 <u>HOSE TRAY</u> One (1) hose tray shall be located above the rear stabilizer, directly in front of the first compartment. Capacity of the tray shall be 200' of 1" hose. This tray shall be pre-plumbed to the Cafs System.</p> <p>4.21 <u>TOW EYES</u> Two (2) rear chrome "tow" eyes shall be located at the rear of the apparatus and shall be mounted directly to the chassis frame rails. The inner and outer edges of the tow eyes shall smooth with no sharp edges.</p> <p>4.22 <u>RUB RAIL</u> Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.</p>		

Specifications	Bidder Complies	
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<p>Trim shall be 2.12" high with 1.38" flanges turned outward for rigidity.</p> <p>The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.</p> <p>4.23 <u>BODY FENDER CROWNS</u> Rubber fenderettes crowns shall be provided around the rear wheel openings. Fenderettes shall be black.</p> <p>4.24 <u>HANDRAILS</u> The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.</p> <p>Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails.</p> <ul style="list-style-type: none"> - One (1) handrail shall be provided on the instrument panel in front of the officer's seat and shall be 20" long. - One (1) vertical handrail, shall be located on each side of the tiller access steps. - One (1) vertical handrail, shall be located on each side of the access steps to the turn table. <p>4.25 <u>AIR BOTTLE STORAGE</u> A total of four (4) air bottle compartments shall be provided. The air bottle compartments will be two (2) each side and located in the body panels around the rear wheels . The air bottle compartment shall be in the form of a round tube (7.63" diameter minimum) and of adequate depth to accommodate different size air bottles. Flooring shall be rubber lined and have a drain hole. A stainless steel door with a chrome plated latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal. No sharp edges that will damage air bottle will be permitted. If there is room for four (4) more, they shall be provided as well.</p> <p>4.26 <u>PIKE POLE STORAGE</u> Pike poles shall be stored in rear ladder rack storage compartment unless otherwise noted.</p> <p>4.27 <u>TURNTABLE ACCESS STEPS</u> For access to the turntable, steps shall be furnished at the front of the rear drive fenders on both sides of the apparatus. The steps shall be illuminated for nighttime operation. All steps shall provide adequate surface for stepping and shall be located in accordance to NFPA 1901.</p> <p>SECTION V. <u>ELECTRICAL</u> All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic or manual reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment shall be installed utilizing the following guidelines:</p>		

<h1>Specifications</h1>	Bidder Complies	
	Supplied	Exception
<p>(1) All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.</p> <p>(2) Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.</p> <p>(3) Electrical components designed shall be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.</p> <p>(4) Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).</p> <p>(5) All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.</p> <p>(6) All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal. Identification of the switches shall be done by either printing or etching on the switch panel. The switches and identification shall be illuminated.</p> <p>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.</p> <p>An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.</p> <p>The results of the tests shall be recorded and provided to the purchaser at time of delivery.</p> <p>5.01 ELECTRICAL WIRING DIAGRAMS Two (2) copies of "As-Built" electrical wiring diagrams specifically prepared for the chassis and body shall be provided. This means two copies total for all identical chassis ordered, not two each. The diagrams shall consist of information pertaining to the 12 VDC systems only.</p> <p>The following items shall be included:</p> <ul style="list-style-type: none"> - Title page, identifying the job number and chassis model. - Table of contents. - Truck specific electrical compartment and instrument layouts for the chassis. - Truck specific electrical compartment layouts for the body. - Applicable drawings from the appropriate standard wiring diagrams. - All truck specific wiring diagrams (special drawings). - Harness drawings for all wiring harnesses used on the chassis. - Harness drawings for all wiring harnesses used on the body. - All truck input/output-programming sheets (multiplexed trucks only). <p>5.02 STEP LIGHTS Aerial turntable and turntable access lights shall be activated by the aerial master switch. All step lights shall be Weldon model 9186-23882-30.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>5.03 <u>REAR FMVSS LIGHTING</u> Two (2) Whelen Model 600 LED (60R00FRR) listed in emergency lighting section shall be installed at the rear of the apparatus. Two (2) Whelen, Model 600 LED brake/tail light heads (60R00XRR) shall be installed at the rear of the apparatus. Two (2) Whelen, Model 600 LED amber turn light heads (60R00TAR) shall be installed at the rear of the apparatus. Two (2) Whelen, Model 600 halogen backup light heads (60J000CU) shall be installed at the rear of the apparatus.</p> <p>Four (4) red reflectors shall be provided.</p> <p>A Weldon, Model 23882-2600-00, license plate bracket shall be mounted on the driver's side above the warning lights. A Weldon, Model 9186-23882-30, step lamp shall illuminate the license plate.</p> <p>5.04 <u>"DO NOT MOVE APPARATUS" INDICATOR LIGHT AND BUZZER</u> A flashing red indicator light Whelen Model CR12MR (located in the driving compartment) shall be illuminated automatically per NFPA (1996 addition, 9-11 or 1999 addition 11-11). The light shall be labeled "Do Not Move Apparatus If Light Is On".</p> <p>An audible alarm shall be provided with the open door indicator light.</p> <p>The parking brake shall control the alarm, so that it shall deactivate when the parking brake is set.</p> <p>5.05 <u>MESSAGES, DISPLAY, Do Not Move Truck</u> There shall be up to eleven (11) messages displayed in the cab. The messages shall designate the specified location of what door is opened or other applicable option is not in the moving position. The following messages shall be displayed: - Driver's Side Cab Door Open. - Driver's Side Body Door Open. - Passenger's Side Cab Door Open. - Passenger's Side Body Door Open. - Rear Body Door Open. - Ladder Not Stowed. - Stabilizers Not Stowed. - Tillerman Not Seated.</p> <p>5.06 <u>COMPARTMENT LIGHTING</u> 6.00" diameter Truck-Lite, model 79384, light/s shall be provided in each enclosed compartment. Each light shall have a number 1076 one filament, two wire bulb. There shall also be a compartment light mounted on the underside each transverse compartment tray.</p> <p>Opening the compartment door shall automatically turn compartment lighting on.</p> <p>5.07 <u>PERIMETER SCENE LIGHTS, CAB</u> There shall be a Truck-Lite, model 40003, 4.00" grommet mount weatherproof light provided for each cab door. Lighting shall be designed to provide illumination on areas under the driver, officer, and crew cab riding area exits, which shall be activated automatically when the exit doors are opened, by the door jam switch and by the same means as the body perimeter lights.</p> <p>The lighting shall be capable of providing illumination at a minimum level of one (1) foot-candle on ground areas within 30.00" of the edge of the apparatus in areas, which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.</p>		

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<p>5.08 <u>PERIMETER SCENE LIGHTS, BODY</u> There shall be two (2) lights provided under the rear step area. The lights shall be spaced one (1) each side of apparatus and have a clear lens. The parking brake shall activate the perimeter scene lights. The lighting shall be capable of providing illumination at a minimum level of one (1) foot-candle on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level.</p> <p>5.09 <u>12 VOLT POWER POINTS</u> Four (4) 12 volt cigarette type power points shall be provided and located in the most forward compartment on the forward wall halfway up the wall (one each side) and one each side in the compartment above the tiller drive axle.</p> <p>5.10 <u>HAND HELD SPOTLIGHT</u> There shall be one (1) light Optronics Model KB4003 hand held spotlight(s), with a momentary switch installed on the engine tunnel next to the officer.</p> <p>The mounting bracket shall be fabricated from stainless steel.</p> <p>SECTION VI. <u>ELECTRICAL SYSTEM DESIGN for ALTERNATING CURRENT</u> The following guidelines shall apply to the 120/240 VAC system installations:</p> <p><u>General</u> Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 5 cycles.</p> <p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.</p> <p><u>Grounding</u> Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.</p> <p>An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p> <p>The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor, properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.</p> <p><u>Operation</u> Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.</p> <p>A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the information detailed in Figure 19-4.10.</p> <p><u>Overcurrent protection</u> The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches. (3658 mm) in length.</p> <p>For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).</p> <p>For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).</p> <p><u>Wiring Methods</u> Fixed wiring systems shall be limited to the following:</p> <ul style="list-style-type: none"> - Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius). <li style="padding-left: 20px;">or - Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius). <p>Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring shall be run as follows.</p> <ul style="list-style-type: none"> - Separated by a minimum of 12 inches (305 mm), or properly shielded, from exhaust piping. - Separated from fuel lines by a minimum of six (6) inches (152 mm) distance. <p>Electrical cord or conduit shall be supported within six (6) inches (152 mm) of any junction box and at a minimum of every 24 inches (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.</p> <p><u>Wiring Identification</u></p>		

Specifications	Bidder Complies	
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<p>All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.</p> <p><u>Wet Locations</u> All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.</p> <p>All receptacles located in a wet location shall be not less than 24 inches (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30 inches (762 mm) from the ground.</p> <p>The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.</p> <p><u>Dry Locations</u> All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30 inches (762 mm) above the interior floor height.</p> <p>All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.</p> <p><u>Listing</u> All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages shall be rated for the appropriate service.</p> <p><u>Electrical System Testing</u> The apparatus manufacturer or the installer of the line voltage system shall test the wiring and associated equipment.</p> <p>The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all bodywork has been completed.</p> <p>Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.</p> <p><u>Operational Test per NFPA 1901 Chapter 19-14.4</u> The apparatus manufacturer shall perform the following operation test and shall certify that the power source and any devices that are attached to the line voltage electrical system is properly connected and in working order.</p> <p>The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.</p> <p>The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in NFPA 1901 chapter 19-14.5.</p>		

Specifications	Bidder Complies	
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<p>Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in NFPA 1901 Chapter 9 shall be applied to the low voltage electrical system during the operational test.</p> <p>6.01 <u>HONDA 5KW SINGLE PHASE GENERATOR</u> The apparatus shall be equipped with a complete electrical power system. The wiring and generator installation shall conform to the present National Electrical Code Standards of the National Fire Protection Association. The installation shall be designed for continuous operation without overheating and undue stress on components.</p> <p>Generator performance shall meet the American National Standards Institute (ANSI) C84.1-1982 voltage requirement as utilized from the receptacle.</p> <p>Generator shall have a built in automatic voltage control.</p> <p>Generator shall have a NEMA MG21 rating.</p> <p>An electronic governor shall control the output of the generator. The governor shall be programmed so the generator's output is at 60 hertz.</p> <p>Highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators shall install the system. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type designed for mobile installations subject to vibration, moisture and severe continuous usage.</p> <p>All electrical wiring from the load center shall be fine stranded copper S.O. type with a 600 volt jacket. The wire shall be sized to the load and circuit breaker rating. The wire size shall be ten (10)-gauge on 30 amp circuits, 12-gauge on 20 amp circuits and 14-gauge on 15 amp circuits. The S.O. cable shall be run in corner areas and extruded aluminum pathways built into the body for easy access. Any S.O. cord not run in an enclosed raceway or cable tray shall have an additional abrasion resistant covering.</p> <p>The main load center shall have circuit breakers rated to load demand.</p> <p>Individual breakers shall be provided for all receptacles to isolate a tripped breaker from affecting any other on-line equipment.</p> <p>6.02 <u>GENERATOR LOCATION</u> The generator shall be mounted in a location determined later.</p> <p>6.03 <u>GENERATOR START</u> A remote start/stop switch shall be located on the cab instrument panel to operate the generator.</p> <p>6.04 <u>GENERATOR OIL DRAIN</u> The generator oil drain shall extend through the floor exiting below the truck.</p> <p>6.05 <u>CIRCUIT BREAKER PANEL</u> The circuit breaker panel shall be located in the front driver's side compartment on the front wall.</p> <p>6.06 <u>120-VOLT LIGHTING</u> Four (4) Kwik-Raze 650 watt, 120 volt Magnum 3000 Series with a diffused reflector light shall be provided and mounted above the compartments (two each side). These lights shall be capable of rotate 360 degrees and be adjustable for up and down angles. An on/off switch shall be provided on the light head.</p>		

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<p>6.07 <u>120 VOLT LIGHTING</u> Two (2) Kwik-Raze 650 watt, 120 volt Magnum 3000 Series with a diffused reflector light shall be provided for the tip of the aerial.</p> <p>6.08 <u>120 VOLT INTERIOR RECEPTACLE (SHORELINE)</u> Receptacle shall be a NEMA 5-20, 120-volt, 20 amps, three (3) wire duplex household type connected to the shoreline.</p> <p>There shall be five (5) receptacles provided.</p> <p>One in cab behind the officer's seat, one in the passenger side forward compartment approximately half way up the front wall, and one in the driver side forward compartment approximately half way up the front wall and the other two shall be determined at pre-construction.</p> <p>6.09 <u>120 VOLT EXTERIOR RECEPTACLE (GENERATOR)</u> Three (3) 120 Volt exterior twist lock receptacles that are 120 volt 20 amp three wire twist-lock NEMA L5-20 type with a weather resisting cover shall be provided. These shall be wired to the generator supply and there shall be; one (1) receptacle located on the aerial ladder tip, and one installed to each side of the tiller fender exterior.</p> <p>6.10 <u>ELECTRIC CORD REEL</u> Furnished with the 120 volt AC electrical system shall be a Hannay, series 1600, cord reel. The reel shall be provided with a 12-volt electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The switch shall be protected with a fuse and installed at a height not to exceed 72 inches above the operators standing position.</p> <p>A Nylatron guide shall be provided to help load and unload the cord from the reel. A ball stop shall be provided to prevent the cord from being wound on the reel.</p> <p>A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.</p> <p>One (1) cord reel shall be provided in the Officer's side front compartment suspended from the ceiling or in front of the hose tray if the backboards are stored in the ladder compartment.</p> <p>The cord reel should be configured for 10/3 cord.</p> <p>6.11 <u>ELECTRIC CORD</u> Provided for electric distribution shall be one (1) length, of 200 feet of Carol Super Vu-Tron II yellow 10/3 electrical cord. A 20 amp twist lock connector body shall be installed on the end of the cord.</p> <p>SECTION VII. WARNING LIGHTS</p> <p>7.01 <u>LIGHTBAR</u> Whelen Edge Model 9308-NFPA/LED Strobe and LED lightbar shall be installed on the apparatus. Lightbar to include 8 linear strobes (six front/two rear) and four 73 series LED flashers facing forward. Length of the lightbar shall be 86" to 90" inches. Lightbar shall include built-in alley lights. Lens colors to be red and clear with amber on the rear outboard strobes. Both the clears and amber lights shall be switched off while in blocking mode. Placement of forward lights from left to right shall be: red strobe, clear strobe, red led, clear strobe, red led, red led, clear strobe, red led, clear strobe, red strobe. A switch shall be provided in the cab that shall allow the operator to control the clear strobes in the lightbar.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>7.02 <u>LIGHTS, FRONT ZONE LOWER</u> A pair of red Whelen 600 series headlight mount LED flashing lights (60R00FRR) shall be provided. The warning lights shall be housed in the same common bezel as the directional lights and be located above the headlights. A switch shall be provided on the cab instrument panel for activating the warning lights.</p> <p>7.03 <u>SIDE ZONE LOWER LIGHTING</u> Whelen Model 600 series linear red strobe with chrome flange (602000RU) shall be installed, on each front bumper extension or on lower cab.</p> <p>Whelen Model 600 series red flashing LED (60R00FRR) with chrome flange (6EFLANGE)) shall be installed at the rear wheel well area each side on the cab, and trailer.</p> <p>A switch on the cab instrument panel shall control the lights.</p> <p>Whelen Model UPS-64LX, strobe power supply shall be provided to control the flash pattern of these strobe lights and the rear strobe lights.</p> <p>7.04 <u>REAR WARNING LIGHTS</u> A pair of Whelen, model 600 flashing amber LED lights (60A00FAR), with chrome flange (6EFLANGE), shall be installed at the rear of the apparatus in the upper zone</p> <p>7.05 <u>REAR ZONE LOWER LIGHTING</u> A pair of Whelen, model 600 flashing red LED lights (60A00FRR), shall be installed at the rear of the apparatus in the lower zone.</p> <p>7.06 <u>WARNING LIGHTS</u> Two (2) Whelen RB6 (RB6P) rotating warning lights shall be provided at the upper rear of the truck, located one (1) each side. A lighted switch on the instrument panel shall activate these lights. The color of the lights shall be red. The rear warning lights shall be mounted on top of the compartmentation with all wiring totally enclosed.</p> <p>7.07 <u>HEADLIGHT FLASHER</u> The high beam headlights shall flash alternately between the left and right side, with a control switch located on the cab instrument panel.</p> <p>A solid state electronic flashing module shall control alternating function.</p> <p>The flasher shall automatically cancel upon switching headlights to high beam and/or when the parking brake is set.</p> <p>7.08 <u>AIR HORN SYSTEM</u> Two (2) Grover air horns shall be provided and located, in the front bumper, recessed one each side of the frame in the bumper. The horn system shall be piped to the air brake system wet tank utilizing .3/8" tubing. A pressure protection valve shall be installed in-line to prevent loss of air, in the air brake system. A foot switch on both the officer's side and on the driver's side shall actuate the air horns.</p> <p>7.09 <u>ELECTRONIC SIREN</u> A Whelen, Model WS-295HFSA3 electronic remote siren with noise canceling microphone with a Model WS295HFSDA second/ dual amplifier shall be provided and installed in the overhead switch panel.</p> <p>Siren head shall be located on a swivel bracket mounted on the headliner so that it is accessible to both the driver and officer. The swivel bracket shall be capable of rotating a minimum of 180 degrees.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>Siren shall also be actuated by a foot switch on the officer's and by the driver's horn button.</p> <p>7.10 <u>SPEAKERS</u> There shall be two (2) speakers recessed in the front bumper. Each speaker shall be a Whelen, Model SA122FMP, cast aluminum, 100-watt, flange mount with polished aluminum finish. Each speaker shall be connected to the siren amplifier.</p> <p>SECTION VIII. <u>FOUR (4)-SECTION 100 FOOT TRACTOR-DRAWN AERIAL</u></p> <p>8.01 <u>CONSTRUCTION STANDARDS</u> The ladder shall be constructed to meet the requirements as described in NFPA 1901-1999 edition. The ladder shall be designed and tested with a safety factor of two to one (2:1) based on the rated load, and a stability factor of one and one half to one (1.5:1). These capabilities shall be established in an unsupported configuration. All welding shall be in compliance with the American Welding Society standards. All welding personnel shall be certified, as qualified under AWS welding codes.</p> <p>8.02 <u>LADDER CONSTRUCTION</u> The ladder shall be comprised of four sections and shall extend to a minimum height of 100 feet above the ground at 75 degrees. The ladder shall have the capability to support a minimum of 500 pounds at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from -5 degrees to +75 degrees. The ladder (handrails, base rails, trusses, k-braces and rungs) shall be constructed of high strength low alloy steel, minimum 70,000 pounds per square inch yield, with full trace ability on all structural members, or with welded 6061T6 alloy aluminum extrusions. In the case of aluminum construction all ladder sections shall be semi-automatically welded by shield arc welding methods using 5356 Aluminum alloy welding wire. Structural rivets for bolts shall not be utilized in the ladder weldments sections for a aluminum ladder. Each section shall be trussed diagonally, vertically and horizontally using welded tubing. All critical points shall be reinforced for extra rigidity and to provide a high strength-to-weight ratio. All ladder rungs shall be round and welded to each section utilizing "K" bracing for torsional rigidity.</p> <p>The inside width dimensions of the ladder may be but not limited to:</p> <ul style="list-style-type: none"> - Base Section 39.00" - Inner-Mid Section 32.25" - Outer-Mid Section 26.62" - Fly Section 21.38" <p>The height of the handrails above the centerline of the rungs may be but not limited to:</p> <ul style="list-style-type: none"> - Base Section 26.75" - Inner-Mid Section 22.87" - Outer-Mid Section 20.25" - Fly Section 17.50" <p>The end of the fly section shall be constructed in a manner that aids in climbing off from the ladder. This egress section shall be bolted on for easy replacement.</p>		
Page 49		

Specifications

Bidder Complies

Supplied	Exception
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Each rung shall be covered with a secure, heavy duty, deep serrated, rubber sheathing. The sheathing shall be both glued and clamped to each rung. Clamps shall be unpainted grade 304 stainless steel and be easily replaced should the rubber become damaged or worn.

8.03 TURNTABLE

The turntable platform shall have a non-skid surface. Work lights activated by the aerial master switch shall light the turntable. Rubber covered handrails, 42.00" high, shall be provided.

8.04 FOLDING STEPS

One (1) set of folding steps with detents shall be supplied to provide sufficient footing at the tip of the ladder.

8.05 ELEVATION SYSTEM

Two double acting lift cylinders shall be utilized to provide smooth precise elevation from 5 degrees below horizontal to 75 degrees above horizontal. The lift cylinders shall have a 6.00" internal diameter (bore), .375" wall thickness, 4.50" diameter cylinder rod and a 33.38" stroke. The lift cylinders shall be equipped with integral holding valves located on the cylinder to prevent the unit from falling should the charged lines be severed at any point within the hydraulic system. They also have spherical bushings at each end to reduce pin wear. Both raising and lowering functions are influenced by flow compensation, which maintains ladder tip speed within approximately 10% regardless of load, angle or extension. Ladder tip speed is automatically decelerated above 60 degrees reducing "tip-lash". The pivot pins are 2.25" in diameter. All elevation pins shall have a corrosion preventative, QPQ black finish and shall have high-grade aluminum/bronze, greasable bushings.

8.06 EXTENSION/RETRACTION SYSTEM

A full hydraulic powered extension and retraction system shall be provided using two hydraulic cylinders and cables. Each cylinder is capable of operating the ladder in the event of a failure to the other. The extension cylinder shall have a 3.00" internal diameter (bore), 1.75" diameter rod and a 134.00" stroke. Extension and retraction shall be internally limited within the cylinders, eliminating excess strain on cables, sheaves and the ladder structure. Each of the cylinders, cables and sheave assemblies shall be completely independent of the other, so as to provide a safety factor wherein a failure of one assembly shall not affect the function and operation of the other. The extension cylinders shall be equipped with integral holding valves to prevent the unit from retracting should the charged lines be severed at any point within the hydraulic system. The cylinders shall also have internal deceleration valves to cushion the movement of the cylinder when approaching full extension or retraction. All extension/retraction pins shall have a corrosion preventative, QPQ black finish.

The reeling of the cable shall be such as to provide synchronized, simultaneous movement of all sections to full extension.

The extension/retraction cables may be but not limited to: Galvanized 7 X 37 IWRC.

- Inner Section .50" diameter with 26,200# nominal design strength.
- Mid Section .38" diameter with 14,880# nominal design strength.
- Fly Section .31" diameter with 10,380# nominal design strength.

UHMW plastic wear pads are used between the telescoping sections for maximum weight distribution, strength and smoothness of operation. Adjustment screws shall be provided on the wear pads to permit proper side alignment.

Specifications	Bidder Complies	
	Supplied	Exception
<p>8.07 <u>ROTATION SYSTEM</u> An external tooth bearing shall be used for the rotation system. The bearing shall provide 360 degree continuous rotation. The turntable shall be bolted to the bearing using SAE grade 8 bolts. A hydraulically driven, planetary gearbox with a drive speed reducer shall be used to provide infinite and minute rotation control throughout the entire rotational travel. The planetary gearbox has a torque rating of 100,000 pounds per inch. A spring applied, hydraulically released disc type swing brake shall be furnished to provide positive braking of the turntable assembly.</p> <p>8.08 <u>ROTATION INTERLOCK</u> A permanently installed prevention mechanism shall be provided as part of the rotation system to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The mechanism shall allow full and unrestricted use of the aerial in the 180-degree area on the side(s) where the stabilizers have been fully deployed. The system shall also have a manual override to comply with NFPA 1901. This shall consist of a switch located in the lower control station so that activation shall require two (2) persons (one at an aerial device control location and one at the lower control station). SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE" SHALL NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND SHALL NOT BE ACCEPTED.</p> <p>8.09 <u>SPOTLIGHTS</u> Two (2) Collins, model FX-12, 750,000 candle power, 12-volt spot/floodlights shall be furnished. The two (2) "tracking lights" shall be mounted on the base section of the ladder, one (1) each side. The lights shall mount below the handrail height so as not to increase the overall height of the unit. Individual master switches with appropriate identification labels shall be provided for the "tracking lights" and "120 volt tip lights" in addition to the on/off switch located on the light itself.</p> <p>8.10 <u>TURNTABLE CONTROL CONSOLE</u> The turntable control console shall be located on the right hand side of the turntable facing the ladder tip. The console shall be illuminated for nighttime operation.</p> <p>Three (3)-dead man style locking handles for the ladder functions (elevation, rotation, extension) shall be provided at the console. They shall be capable of being operated independently or simultaneously. The starting or stopping of any one control shall not affect the movement speed of the other controls when they are being used simultaneously.</p> <p>Operators control console shall be provided with a hinged cover.</p> <p>Controls and indicator lights shall be clearly identified and conveniently located for ease of operation and viewing.</p> <p>Operators turntable control panel shall include: Intercom, EPU, monitor stow.</p> <ul style="list-style-type: none"> - Elevation, Extension, and Rotation Controls: Physically positive lock in neutral center position. - Fast Idle Switch. - Tip/Tracking lights. - Remote Start/Stop switch for the engine. - Load Chart. 		

Specifications

Bidder Complies

Supplied Exception

- Monitor Controls.

- EPU Switch and Light.

8.11 STABILIZERS

Extendible stabilizers shall be provided for stability. The stabilizers shall be the double box design. The jack cylinders shall be equipped with integral holding valves which shall hold the cylinder either in the stowed position or the working position should a charged line become severed at any point within the hydraulic system. The extension cylinders shall be totally enclosed within the extension beams. They shall be equipped with internal decelerators so as to reduce the speed of extension and retraction when near the fully retracted position. The extension box beams shall be constructed of 100,000 psi steel.

The stabilizer controls shall be located at each side of the apparatus, arranged so that the operator has full view of the stabilizer being positioned. All stabilizer control functions shall be operated independently so that the vehicle may be set up in a restricted area or an uneven terrain. An electrically actuated diverter valve shall be provided in conjunction with the stabilizer controls as a safety device. The diverter valve shall allow the hydraulic fluid to flow either to the stabilizer circuit or the turntable and ladder circuit, but not simultaneously. To aid in leveling the unit two (2) bubble type gauges shall be provided adjacent to the stabilizer controls.

A stabilizer deployment warning alarm shall be provided at each side of the body, activated by the stabilizer mode. The warning alarm shall deactivate only when all the stabilizers are placed in the load-supporting configuration.

A "Stabilizers Not Stowed" indicator light shall be provided in the driver's compartment. It shall illuminate automatically whenever the stabilizers are not fully stowed, to prevent damage to the apparatus if moved. The stabilizer system shall also be wired to the "Do Not Move Indicator Light", which shall flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.

The aerial device shall be able to be operated to full capacity without having to jackknife the tractor and trailer.

8.12 STABILIZER CONTROL STATION

The stabilizer controls shall be located at each side of the apparatus, arranged so that the operator has full view of the stabilizer being positioned.

The stabilizer controls shall be electric over hydraulic.

All stabilizer control functions shall be operated independently so that the vehicle may be set up in a restricted area or an uneven terrain.

Each stabilizer control panel shall include the following:

- Driver Side "In/Out" Stabilizer Control.
- Driver Side "Up/Down" Stabilizer Control.
- Passenger Side "In/Out" Stabilizer Control.
- Passenger Side "Up/Down" Stabilizer Control.
- Stabilizer EPU Control.
- High Idle Control.
- Indicator and Alarm Test Control.
- Driver Side Stabilizer Planted Indicator.

Specifications	Bidder Complies	
	Supplied	Exception
<ul style="list-style-type: none"> - Passenger Side Stabilizer Planted Indicator. - Stabilizers Not Fully Extended Indicator. - Hydraulic Filter Plugged Indicator. - Inclinometer For Grade And Slope. <p>Manual override stabilizer controls shall be located adjacent to the driver side stabilizer.</p> <p>An electrically actuated diverter valve shall be provided in conjunction with the stabilizer controls as a safety device. The diverter valve shall allow the hydraulic fluid to flow either to the stabilizer circuit or the turntable and ladder circuit, but not simultaneously.</p> <p>To aid in leveling the unit a bubble type gauge shall be provided adjacent to the stabilizer controls.</p> <p>A stabilizer deployment warning alarm shall be provided at each side of the body, activated by the stabilizer mode.</p> <p>The warning alarm shall deactivate only when all the stabilizers are placed in the load supporting configuration.</p> <p>A "Stabilizers Not Stowed" indicator light shall be provided in the drivers compartment.</p> <p>It shall illuminate automatically whenever the stabilizers are not fully stowed, to prevent damage to the apparatus if moved.</p> <p>The stabilizer system shall also be wired to the "Do Not Move Indicator Light", which shall flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.</p> <p>The aerial device shall be able to be operated to full capacity without having to jackknife the tractor and trailer.</p> <p>A water tight compartment shall be furnished behind the control panel and contain the aerial circuit breakers, interlock components and control circuit distribution terminals.</p> <p>8.13 <u>AUXILIARY STABILIZER PADS</u> An auxiliary pad shall be provided for each stabilizer for additional load distribution on soft surfaces. One (1) auxiliary pad shall be stored adjacent to each stabilizer.</p> <p>8.14 <u>STABILITY ALARM</u> An audible alarm with a DBA level no less than 100 shall be provided at the control console to alert the operator should the stability limitations of the ladder be exceeded. The alarm shall only notify the operator of the condition but in no way restrict the further operation of the ladder. Two (2) Ecco amber strobe lights shall be located at the tip of the base section, one (1) each side, wired to the stability gauge to indicate an unsafe condition.</p> <p>8.15 <u>STABILIZER ALARM</u> An electronic warning device (90 DBA minimum) shall be provided near each stabilizer to warn personnel that the stabilizers are being operated. The alarms shall activate when the diverter switch is placed to the stabilizer position. Each alarm shall cease when its stabilizer is in a load-bearing configuration.</p> <p>8.16 <u>STABILIZER SCENE LIGHTS</u> To illuminate the area around the stabilizers, a clear floodlight shall be provided at each stabilizer. The light shall be a minimum a 4.00" diameter and shall be activated by the aerial master switch.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>8.17 <u>STABILIZER WARNING LIGHTS</u> One (1) red Code 3[®], Model 41BZ, halogen warning light shall be mounted on each stabilizer cover panel. The "NFPA SIDE" switch shall activate these warning lights.</p> <p>One-6.00" diameter, double faced red flashing light shall be mounted on each stabilizer facing to the front and rear of the truck. These warning lights shall also be activated with the aerial master switch.</p> <p>8.18 <u>SCOTCH-LITE STABILIZER BEAM STRIPING</u> Each outrigger beam assembly shall be striped with Scotch-Lite reflective material. The stripes shall be applied to provide a reflective warning in the dark when the beams are extended. The color of the stripes shall be white, and the width of each stripe shall be a minimum of two (2) inches.</p> <p>8.19 <u>STABILITY SENSING SYSTEM</u> There shall be two (2) pressure gauges at the control console, one (1) showing the system hydraulic pressure and one (1) to indicate the stability load. The gauge indicating the load shall provide the operator with a continuous "read out" of the approximate load relative to the maximum rated capacity. The load chart affixed to the turntable console shall always remain the primary aerial loading reference.</p> <p>8.20 <u>CRADLE INTERLOCK SYSTEM</u> A cradle interlock system shall be provided to prevent the lifting of the aerial from the nested position until the operator has positioned all the stabilizers in a load-supporting configuration. A switch shall be installed at the cradle to prevent operation of the stabilizers once the aerial has been elevated from the nested position.</p> <p>8.21 <u>POWER TAKEOFF / HYDRAULIC PUMP</u> The apparatus shall be equipped with a power takeoff (PTO), driven by the chassis transmission and actuated by an electric shift located inside the cab. The PTO, which drives the hydraulic pump, shall be capable of meeting all the requirements for the aerial unit operations. An amber indicator light shall be installed on the cab instrument panel to notify the operator that the PTO is engaged. The PTO shall be of the HOT SHIFT type.</p> <p>An interlock shall be provided that allows operation of the aerial PTO shift, only after the chassis spring brake has been set and the transmission has been either placed in the neutral position or in the drive position with the driveline to the rear axle disengaged.</p> <p>8.22 <u>HYDRAULIC SYSTEM</u> The tubing used in the hydraulic system shall be high pressure rated with the tubing having a minimum burst pressure of 9,000 psi. High pressure hose shall have a working pressure rating of 4,000 psi and a burst pressure rating of 16,000 psi.</p> <p>The hydraulic oil tank shall have a minimum capacity of 40 gallons. A dipstick or sight gauge shall be provided to check the oil level. The oil fill shall be in an easily accessible area and conspicuously marked "HYDRAULIC OIL".</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The oil fill shall be furnished with a cap that shall act as a ventilator to provide clean fresh air into the oil tank and a 40-micron filter to provide positive protection from contaminates. A magnet shall be provided in a low point of the oil tank. The tank fill shall be 1.50" and the drain hose line shall terminate with a quarter-turn valve and plug. An easily accessible ten (10) micron replaceable return oil filter shall be provided. A ten (10) micron high-pressure oil filter shall be installed between the hydraulic pump and rear diverter valve. The hydraulic oil tank shall be furnished with two (2) pick-up tubes, one (1) pick up tube shall be used for normal operation and the other shall be reserved for emergency operations. The emergency pick-up tube shall extend further down into the oil tank to provide for some reserve oil in case a hydraulic line is broken. Normal operation pick up tube shall have a 200-mesh filter.</p> <p>A load sensing piston type pump shall supply the hydraulic system. The hydraulic pump shall operate at a nominal 32 gallons per minute, at pressures up to 3,000 psi. The pump shall provide adequate fluid volume to allow all ladder functions to operate simultaneously, without loss of speed. Aerial device shall be operable at engine idle. The pump shall supply oil only when the ladder controls are operated, thereby preventing overheating of the hydraulic oil. When the hydraulic pressure reaches a preset level the pressure-compensating feature of the pump shall discontinue any flow into the system.</p> <p>A high-pressure manifold block with test ports shall be located at the turntable to allow testing of any and all aerial functions.</p> <p>The hydraulic system shall be protected from possible hydraulic pump malfunctions by a relief valve, which shall route the excess oil into the oil tank when the pressure in the hydraulic system exceeds 3,150 psi. The hydraulic control valves shall be plumbed to a pressure relief valve to protect them from high pressure.</p> <p>8.23 <u>PRESSURE FILTER</u> The pressure filter shall be made of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic.</p> <p>The element shall have remove 99.5% of particles 4 microns or larger. The element shall have a dirt holding capacity of 33 grams.</p> <p>8.24 <u>RETURN FILTER</u> The return filter shall be made of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic.</p> <p>The element shall remove 99.5% of particles 9.5 microns or larger. The element shall have a dirt holding capacity of 85 grams.</p> <p>8.25 <u>EMERGENCY PUMP</u> The apparatus shall be equipped with an emergency hydraulic pump that is electrically driven from the truck batteries. The emergency pump shall be capable of limited ladder functions to stow the unit in case of a prime mover failure. A control switch for the emergency pump shall be installed at the stabilizer control panel and at the turntable control console. The control shall be a spring-loaded momentary switch. A red indicator light shall be located adjacent to each switch to indicate activation of the emergency pump. The pump shall be capable of continuous operation for 30 minutes.</p> <p>8.26 <u>HYDRAULIC SWIVEL</u> The aerial ladder shall be equipped with a three (3) port, high pressure hydraulic swivel which shall connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel shall allow for 360-degree continuous rotation of the aerial.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>8.27 <u>ELECTRIC SWIVEL</u> The ladder shall be equipped with an electric swivel to allow 360-degree rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 28 collector rings shall be provided that are capable of supplying 20 amp continuous service. All collector rings shall be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone shall be used.</p> <p>8.28 <u>WATER SWIVEL</u> Water shall be transferred to the aerial waterway by means of a 4.00" internal diameter through the water swivel permitting 360-degree continuous rotation.</p> <p>8.29 <u>COMMUNICATION SYSTEM</u> An Atkinson communication system shall be furnished between the aerial tip and the turntable operator's position. The communication system shall be a two (2)-way system with the communication speaker at the tip requiring no operator attention to transmit or receive. The transmitting and receiving volume controls shall be located at the turntable operator's position.</p> <p>8.30 <u>WATER SYSTEM</u> A waterway system shall be provided consisting of the following components and features: The integral telescopic water system may consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the lower mid-section, a 3.50" diameter tube in the upper mid-section and a 3.00" diameter tube in the fly section. The telescopic waterway shall be constructed of anodized aluminum pipe. The aerial shall be capable of discharging up to 1000 gpm at 100 psi parallel to the ladder and 90 degrees to each side of center. An adjustable pressure relief valve shall be furnished to protect the aerial waterway from a pressure surge. Two (2) 1.50" drain valves shall be located at the lowest points of the waterway system.</p> <p>8.31 <u>FLOW METER</u> A Class I Flow-Minder with totalizer shall be provided for the aerial waterway with a range of 0 to 1500 gallons per minute and located on the aerial turntable console.</p> <p>8.32 <u>AERIAL MONITOR</u> An Akron Model 3578 monitor, with a 5077, 1250 gallon per minute, variable stream nozzle shall be provided. The monitor's functions shall be controlled electrically from two separate locations. One control for the nozzle shall be located at the control console and the other at the ladder tip. There shall be a courtesy light at the tip of the aerial to illuminate the controls.</p> <p>8.33 <u>AERIAL WATERWAY INLET</u> The aerial waterway shall be plumbed from the fifth wheel area to the waterway swivel with 4.00" pipe. A 5.00" storz-coupling inlet shall be located on each side of the apparatus complete with a cap and cable. The individual "line" pressure gauges for the inlets shall be silicone filled and manufactured by Class I. They shall be a minimum of 2.50" in diameter and shall have white faces with black lettering. Gauges shall be compound type with a vacuum/pressure range of 30.00"-0-400#. The individual pressure gauge shall be installed as close to the inlet as practical.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>8.34 <u>WATERWAY LOCKING SYSTEM</u> The aerial ladder waterway monitor shall be capable of being positioned at either the fly section or at the next lower section of the ladder.</p> <p>The monitor location shall be changeable by the use of a single handle, located at the side of the ladder.</p> <p>The handle, attached to a cam bracket, shall simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section.</p> <p>There shall be no pins to remove and reinstall.</p> <p>The monitor shall be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.</p> <p>8.35 <u>EXTENSION INDICATOR</u> Extension markings and corresponding numerical indicators shall be provided along each inside and outside top rail of the base section of the aerial every ten (10) feet. They shall indicate various positions of extension up to full. Markings and indicators shall be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators shall be of a red reflective material.</p> <p>8.36 <u>LIFTING EYE - ROPE RESCUE ATTACHMENT</u> Two (2) eyes shall be welded, one (1) to each ladder beam, at the ladder egress with a spreader bar mounted between the eyes. This design shall distribute a load evenly across the ladder beams because of a single lifting eye on the spreader bar. The bar is retained by two (2) locking pins, one (1) at each end outboard of each eye. Leveling is maintained by the bar rotating in the eyes.</p> <p>8.37 <u>INSPECTION CERTIFICATE</u> A third party inspection certificate for the aerial device shall be furnished upon delivery of the aerial device. The certificate shall be Underwriters Laboratories Inc. Type-1, indicating the aerial device has been inspected on the production line and after final assembly.</p> <p>The following tests shall be conducted:</p> <ul style="list-style-type: none"> - Magnetic particle inspection shall be conducted on every weld to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets shall be placed on each side of the weld while graphite powder is placed on the weld itself. The powder shall detect any crack that may exist. This test shall be performed prior to assembly of the aerial device. - Ultrasonic inspection shall be used to detect any flaws in pins, bolts and other critical mounting components. - Functional tests, load tests, stability tests and visual structural examinations shall be performed. These tests shall determine any unusual deflection, noise, and vibration or instability characteristics of the unit. <p>8.38 <u>TILLER TRAILER FRAME</u> The gooseneck area of the tiller trailer may be constructed of 100,000 psi steel.</p> <p>The gooseneck area should have a section modulus of 3102 cu. in. and a resistance to bending moment of 310,200,000 inch pounds.</p> <p>The gooseneck area may be 46.00" wide x 12.00" deep.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The tiller trailer frame may be built with two (2) steel channels bolted together with nine (9) heavy duty cross members.</p> <p>The side rails may have a 13.38" tall web over the front and mid sections of the trailer, with a continuous smooth taper to a 10.75" over the tiller axle.</p> <p>The frame rails may be constructed of 110,000 psi yield strength heat treated .38" thick steel, with 3.50" wide flanges.</p> <p>Each rail may have a section modulus of 25.99 cu. in., and a resisting bending moment (rbm) of 2,859,122 inch pounds over the critical regions of the frame assembly, with a section modulus of 18.96 cu. in. with an rbm of 2,085,803 inch pounds over the rear axle.</p> <p>The tiller trailer frame with cross members may have a section modulus of 949 cu. in. and a resistance to bending moment of 47,450,000 inch pounds.</p> <p>The overall length of the tiller trailer frame should be 463.50".</p> <p>8.39 TILLER CAB A tiller cab shall be located to the rear of the aerial ladder.</p> <p>The tiller cab shall be totally enclosed.</p> <p>The cab windshield shall be tinted safety glass, with a defroster heat strip imbedded in the glass if available.</p> <p>Each side window, directly rearward of the windshield, shall be more than 536 square inches. The side windows, combined with the windshield, shall provide a minimum of 2,585 square inches of unobstructed viewing area.</p> <p>The tiller cab doors shall be equipped with drop-down sliding window. The windows shall be 18.00" wide x 31.00" high and be capable of locking in the open position along with the closed position.</p> <p>The rear wall of the tiller cab shall have a vertically split sliding window. The window shall be 33.50" wide x 27.75" high.</p> <p>For additional ventilation, two (2) manual roof vents shall be installed in the sides of the cab, just ahead of the tiller cab doors.</p> <p>The tiller cab floor shall be constructed of aluminum treadplate.</p> <p>A two-speed electric w/intermittent windshield wiper with washer shall be provided for the front windshield.</p> <p>An adjustable, telescopic steering column shall be provided.</p> <p>Auxiliary lighting inside the tiller cab shall consist of a 5.00" diameter overhead dome light with an integral switch.</p> <p>The following controls/alarms shall be provided inside the tiller cab:</p> <ul style="list-style-type: none"> - Buzzer signaling system with foot switch control. - Jackknife alarm. 		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The following shall be provided on the steering column support pedestal:</p> <ul style="list-style-type: none"> - Two heater/defroster outlets. - Diagnostic plug for trailer ABS system. - Heater/defroster control switch. - Windshield wiper/washer control switch. <p>The following controls/gauges shall be located in the upper control panel:</p> <ul style="list-style-type: none"> - Dome/step light switch. - Tiller wheel position indicator gauge (L-C-R). - Two 2.0" diameter amber turn signal & brake indicator lights. - Cornering light switch shall be controlled by a switch on the steering column. - 12 volt power point for future power needs and shall be individually capable supplying 30 amps. <p>8.40 <u>DEFFOGER FANS</u> One (1) individually switched all metal construction 6" windshield defogger fan shall be installed and the location will be determined at a latter date.</p> <p>8.41 <u>HEATER/DEFROSTER</u> The tiller cab shall be equipped with a diesel/kerosene fired 13,650 BTU/HR heater/defroster. The heater unit shall be mounted in the tiller cab within the drivers control pedestal. Two (2) directional vents shall be positioned for defrosting the front windshield. A thermostatic control with on-off switch shall be mounted on the tiller cab dash. The heating unit shall be provided with an internal circulating fan, which shall be approximately 30 cfm on the lowest setting to 85 cfm on the highest setting.</p> <p>A three (3) gallon fuel tank with shut-off valve shall be installed. The tank shall provide enough fuel to supply the heater for 23 hours of continuous operations. The time shall be depending on the temperature settings. This tank shall be located so that the operator may be able to refill the tank without removing panels or needing a funnel.</p> <p>The heater controls shall be equipped with a low voltage cutout to prevent vehicle battery drain and a high voltage shut-off to protect the heater electrical components. Combustion air and heater exhaust shall both be routed to the outside of the tiller cab.</p> <p>8.42 <u>BUZZER WARNING SYSTEM</u> A buzzer warning system shall be provided between the tractor cab the tiller cab. One (1) weatherproof button shall be located in the dash of the tiller cab with buzzer located in tractor cab. Button shall be labeled: 1-Stop, 2-Go, 3-Back-up.</p> <p>8.43 <u>TILLER CAB SEAT</u> A low profile air seat shall be provided in the tiller cab for the tillerman. The seat shall be provided with a switch that's connected to a warning indicator in the tractor cab. The indicator shall indicate the tiller driver not present in the tiller cab.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The seating position shall be furnished with a 3-point seat belt. The seat belt shall be furnished with an automatic retractor. Extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p> <p>8.44 <u>TILLER CAB STEPS</u> For access to the tiller cab, a series of four (4) steps shall be furnished at the rear of the apparatus on both sides. The steps shall be constructed of aluminum treadplate with Morton Cass inserts. The steps shall be illuminated for nighttime operation. Handrails shall be provided on each side of the step assemblies for maximum safety. All steps shall provide adequate surface for stepping and shall be located in accordance to NFPA 1901.</p> <p>8.45 <u>JACKKNIFE ALARM</u> An audible and visual warning system shall be provided to warn both drivers when the jackknife position approaches the maximum allowable angle.</p> <p>8.46 <u>TILLER WARNING INDICATOR</u> A warning indicator in the tractor cab shall be activated if the parking brake is released and the tiller driver is not present in the tiller cab.</p> <p>8.47 <u>CONVEX MIRRORS (tiller cab)</u> A 6.00" diameter round convex mirror with adjustable arm shall be installed on each side of tiller cab.</p> <p>8.48 <u>DECK LIGHTS</u> Two (2)-6.00" Unity AG deck lights with swivel mount shall be provided at the rear of the tiller cab. The lights shall be furnished with a dual spot/flood light combination. These may be remotely turned on from inside the tiller cab.</p> <p>8.49 <u>WALKWAY, TURNTABLE TO BODY</u> A walkway shall be provided from the aerial turntable to the tiller body. And shall provide adequate surface for stepping in accordance to NFPA 1901.</p> <p>8.50 <u>TRAILER AXLE</u> The trailer axle shall be a Meritor model FL-941 steering axle with a 21,500 pound capacity. The axle shall accommodate hub piloted wheels.</p> <p>8.51 <u>TRAILER STEERING SYSTEM</u> The trailer steering gear shall be Ross TAS-85 integral power steering gearbox or equivalent. A 20" diameter steering wheel shall be provided in the tiller cab.</p> <p>8.52 <u>TRAILER SUSPENSION</u> The trailer suspension shall be a Ridewell Model RAS-227 air ride suspension system or equivalent. The suspension shall have a capacity at ground equal to that of the trailer axle. Heavy-duty shock absorbers shall be installed on the trailer suspension.</p> <p>8.53 <u>TRAILER BRAKES</u> The trailer brakes shall be drum type with automatic slack adjusters and shall conform to existing Department of Transportation braking regulations at time of manufacture. The capacity of the two (2) air tanks shall be 2,908 cubic inches.</p> <p>8.54 <u>TRAILER ABS BRAKING SYSTEM</u> The trailer axle shall be equipped with a Wabco Anti-Lock Braking System (ABS) to provide controlled stopping under emergency braking conditions. The system shall help to maintain steerability and stability under emergency braking. All wheel sensors installed on the apparatus shall be rigid mounted and completely weather sealed for corrosion resistance.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>8.55 <u>BRAKING CONTROL SYSTEM</u> The trailer brakes shall be plumbed to the "Brake Release" control valve in the tractor cab within easy reach of the driver's seat position and shall be labeled as to its function. One (1) control shall be used for the tractor and trailer axle. An indicator light shall be installed in the tractor cab dash adjacent to the control.</p> <p>8.56 <u>TRAILER TIRES</u> Tiller trailer tires shall be Michelin radials, 425/65R22.50, 20-ply all season tread. With a 22,800 pound capacity at 125 psi. The tires shall be <u>siped</u>, <u>balanced</u> mounted on 22.50" x 12.25" painted steel disc type wheels with a ten (10)-stud 11.25" bolt circle.</p> <p>8.57 <u>OIL SEALS</u> Oil seals shall be provided on the tiller axle.</p> <p>8.58 <u>REAR BUMPER</u> A 4.00" x 4.00" steel tube, covered with aluminum 4-way material, shall be mounted directly to the rear of the tailboard area. It shall extend the full width of the body and attach to the body supports at the rear.</p> <p>SECTION IX. <u>PAIN</u> 9.01 <u>GENERAL PROCEDURES</u> The exterior custom cab and body painting procedure should consist of a six (6) step finishing process as follows:</p> <ol style="list-style-type: none"> 1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate. Each imperfection on the exterior metal surface shall be removed or filled and then sanded smooth for a smooth appearance. All seams shall be sealed before painting. 2. <u>Chemical Cleaning and Treatment</u> - The metal surfaces shall be properly cleaned using a high pressure and high temperature acid etching system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra pure water final rinse shall be applied to all metal surfaces, excluding undercarriage components, at the conclusion of the metal treatment process. 3. <u>Primer/Surfacer Coats</u> - A two (2) component urethane primer/surfacer shall be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. 4. <u>Hand Sanding</u> - The primer/surfacer coat shall be lightly sanded to an ultra smooth finish. 5. <u>Sealer Primer Coat</u> - A two (2) component sealer primer coat shall be applied over the sanded primer. 6. <u>Topcoat Paint</u> - Two (2) coats of an automotive grade, two (2) component acrylic urethane paint, shall also be applied. <p>All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.</p>		
Page 61		

Specifications	Bidder Complies	
	Supplied	Exception
<p>The cab shall be two-tone, with the upper section painted White (equal to PPG 8000) along with a shield design on the cab face and lower section of the cab and body painted Red (equal to PPG 4154).</p> <p>9.02 <u>PAIN T CHASSIS FRAME ASSEMBLY</u> The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc. Components that are included with the chassis frame assembly that shall be painted black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.</p> <p>9.03 <u>PAIN T, COMPARTMENT INTERIOR</u> Interior of compartments shall be painted with gray spatter type paint. Bidder shall state if they have an alternate product similar to rhino coat and the extra cost for this option.</p> <p>9.04 <u>AERIAL DEVICE PAINT COLOR</u> All aerial device structural components above the rotation point that are not chrome plated or stainless steel shall be painted. If the aerial device is an extruded aluminum type, then painting is not required for those sections of the aerial.</p> <p>All buy out components, such as monitor, nozzle, gauges, etc. shall be supplied as received from the vendor.</p> <p>All areas to be painted shall be sanded to remove any metal flakes and smooth any rough surfaces.</p> <p>All ladder surfaces to be painted shall be phosphatized to remove metal impurities, aid paint adhesion and inhibit rust.</p> <p>The components shall be prime painted with an epoxy primer and finished painted with a durable, high quality white paint (manufacturer's standard brand).</p> <p>The support structure and components below the rotation point shall be painted job color.</p> <p>The stabilizers and rotation motor shall be painted gloss black.</p> <p>The tip of the ladder shall be painted a contrasting color for high visibility.</p> <p>A reflective stripe shall be provided on the vertical and horizontal members of the stabilizers.</p> <p>9.05 <u>REFLECTIVE BAND</u> A 10.00" white reflective band shall be provided across the front of the vehicle and along the sides of the body. Two (2) ¼" reflective red strips will be inside this 10" strip and positioned ¼" above the lower edge and below the upper edge. A 4.00" band shall be provided at the rear of the apparatus.</p> <p>9.06 <u>KEEP BACK WARNING SIGN</u> A "KEEP BACK 500 FEET" warning sign shall be provided and installed on the rear of the apparatus body panel. The letters of the warning sign shall be a minimum of 4" high and shall be Red Reflective Scotch-Lite material on the painted white sign.</p> <p>9.07 <u>AERIAL SIGN</u> A sign shall be provide on both side of the aerial with "SPOKANE FIRE DEPARTMENT". The letter sizes shall be approximately 10" high and 120" long. Color shall be black.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>9.08 <u>UNDERCOATING, CAB & BODY</u> An authorized Ziebart dealer shall properly treat the apparatus.</p> <p>The underside of the apparatus shall be undercoated with an asphalt petroleum based material, dark in color.</p> <p>The undercoating material utilized on the apparatus shall be formulated to resist corrosion and deaden unwanted sound or road noise.</p> <p>Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.</p> <p>The material shall be applied to the following areas: Body and cab wheel well fender liners, on the backside only. Underside of body and cab sheet metal, and structural components. Underside and vertical sides of all sheet metal compartmentation, including support angles. Structural support members under running boards, rear platforms, battery boxes, walkways, etc.</p> <p>SECTION X. <u>WARRANTY</u></p> <p>10.01 <u>GENERAL WARRANTY</u> Any standard major component manufacturer warranty that is effected or reduced due to changes or additions from the apparatus builder, will then be the responsibility of the builder to provide full warranty up to what would have been the standard warranty if these changes or additions had not occurred.</p> <p>10.02 <u>ENGINE WARRANTY</u> The engine shall come with a five (5) year or 100,000 mile warranty provided by the Detroit Diesel Corporation.</p> <p>10.03 <u>TRANSMISSION WARRANTY</u> The transmission shall have a five (5) year/Unlimited mileage warranty covering 100% parts and labor. Warranty to be provided by Allison Transmission, not apparatus builder.</p> <p>10.04 <u>FRONT AXLE WARRANTY</u> The non-drive axle system shall have a three (3) year parts and labor warranty.</p> <p>10.05 <u>REAR AXLE WARRANTY</u> A three (3) year parts and labor warranty shall be provided with this axle, plus an additional two (2) years of parts only coverage. They shall also provide a one (1) year parts and labor warranty for wheel seals.</p> <p>10.06 <u>TRAILER AXLE WARRANTY</u> The axle system shall have a three (3) year parts and labor warranty.</p> <p>10.07 <u>ANTI-LOCK BRAKE SYSTEM & ATC WARRANTY</u> The Wabco ABS/ATC (anti-lock brake system/automatic traction control) system shall come with a three (3) year or 300,000 mile parts and labor warranty provided by Wabco Vehicle Control Systems.</p> <p>10.08 <u>CAB WARRANTY</u> The bidder shall furnish a ten (10) year cab warranty. The warranty shall cover defects in design or workmanship in the cab tubular support and mounting supports and other cab structural components identified in the specifications. A copy of the warranty shall be submitted with the bid.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>10.09 <u>VELVAC MIRROR WARRANTY</u> The Velvac two (2) year warranty on material and workmanship and five (5) year warranty on chrome finish shall be provided.</p> <p>10.10 <u>BODY WARRANTY</u> A copy of the fire apparatus manufacturer's warranty shall be included with the bid. The warranty shall state that the body shall be free of structural failures caused by defective materials, design or workmanship for a warranty period of ten (10) years from the date the new vehicle is first delivered or 100,000 miles, whichever occurs first and that defective parts, under the warranty, shall be repaired or replaced without charge to the original purchaser.</p> <p>10.11 <u>AERIAL STRUCTURAL WARRANTY</u> The aerial device shall be warranted against structural failures caused by defective materials, design or workmanship for a period of twenty (20) years after the date on which the vehicle is first delivered to the original purchaser or 100,000 miles, whichever occurs first. This warranty shall be limited to the torque box, aerial sections and other structural components.</p> <p>10.12 <u>PAINT AND CORROSION WARRANTY</u> The cab and body exterior paint finish shall be warranted against blistering, peeling, fading of gloss or color, bubbling, lack of adhesion or any other manufacturing or material defect for a period of six (6) years. The cab and body shall also be warranted against corrosion perforation for a period of ten (10) years. A copy of the manufacturer's warranty shall be included with the bid.</p> <p>10.13 <u>FRAME RAIL WARRANTY</u> The frame rails shall be guaranteed for the life of the vehicle against defects in design, material or workmanship, excluding accident or abuse. A copy of the fire apparatus manufacturer's warranty shall be included with the bid. Cracks in frame rails that exceed 25% width or height of rail section shall be replaced entirely by manufacturer and not repaired, excluding accident or abuse.</p> <p>SECTION XI. <u>MANUALS</u></p> <p>11.01 <u>MANUAL, BODY</u> There shall be two (2) body manuals provided with the completed unit at time of delivery. Parts description in the manual/s shall be the expanded drawing type, showing all component parts.</p> <p>11.02 <u>MANUAL, CHASSIS PARTS</u> Two <u>complete</u> (2) parts manuals for the chassis from the Engine, and Transmission manufacturers, containing parts information and on all other major components provided with the completed unit shall be provided with the completed unit. Part descriptions shall be of the expanded drawing type showing all component parts. The manual shall be specifically for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis.</p> <p>11.03 <u>MANUAL, CHASSIS SERVICE</u> There shall be two (2) <u>complete</u> chassis service manuals from the Engine, and Transmission manufacturers, containing service information and on all other major components provided with the completed unit.</p> <p>11.04 <u>MANUAL, CHASSIS OPERATION</u> Three (3) illustrated chassis operation manuals shall be provided for each apparatus.</p> <p>11.05 <u>MANUAL, AERIAL</u> Three (3) aerial manuals from the manufacturer shall be furnished with the apparatus. Manuals shall cover operation, maintenance, wiring diagrams and parts.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>11.06 <u>MANUAL, CAFS</u> Three (3) CAFS manuals from the CAFS manufacturer shall be furnished with the apparatus. Manuals shall cover operation, maintenance, and parts.</p> <p>11.07 <u>MANUAL, GENERATOR</u> A manual from the generator manufacturer shall be furnished with the apparatus. Manual shall cover, service, maintenance, and parts.</p> <p>11.08 <u>VIDEO TRAINING TAPES</u> There shall be one (1) set of operation and maintenance video training tapes for each chassis and aerial provided.</p> <p>11.09 <u>ADDITIONAL DOCUMENTATION</u> Aerial certification including manufactures record of apparatus construction details. Certificate of compliance to Electrical Warning System Low Voltage Test. Certificate of Compliance of the Optical Warning system.</p> <p>11.10 <u>INSPECTION TRIP(S)</u> The bidder shall provide two (2) factory inspection trips for two (2) Fire Department representatives each trip for pre-build, and pre-delivery. The inspection trips shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals shall be the responsibility of the bidder.</p> <p>11.11 <u>TRAINING</u> A training engineer shall be provided to instruct the fire department personnel in the operation and maintenance of the aerial device for a period of not less than four (4) days.</p> <p>11.12 <u>TRAINING PROGRAM</u> To instruct Fire Department personnel in the operation, preventative maintenance and care of the aerial device, this training program shall be oriented towards a hands-on approach utilizing the new apparatus.</p> <ol style="list-style-type: none"> 1. Review personnel training level and determine specific training requirements. 2. Explain operations of the entire aerial device. Each participant shall actually use the aerial and be taught the necessary steps for safe operation. 3. Troubleshooting will be emphasized and reinforced continually throughout the training period. 4. Preventative maintenance procedures shall be set up and definite schedules developed to assure proper maintenance of the aerial device. 5. Instruction in the use of tools and how to replace minor assemblies, as applicable. 		

Specifications	Bidder Complies	
	Supplied	Exception
<p>SECTION XII. <u>LOOSE EQUIPMENT</u> The following equipment shall be furnished with the completed unit:</p> <p>12.01 <u>GROUND LADDERS</u> The ground ladders shall be stored and shall be removable from the rear. Ladders shall be fully enclosed to prevent road dirt and debris from fouling or damaging the ladders. The ladders shall rest in full-length stainless steel slides and are arranged in such a manner that any one (1) ladder can be removed without having to move or remove any other ladder and shall be captured to minimize movement. The ladders shall rest on a series of rollers for ease of deployment and storage. A cam-actuated locking system shall be provided to secure the ladders during travel. A single actuator shall be provided in the center of the ladder storage area to lock and unlock the ladders. In addition, each ladder shall have a locking gate to secure each individual ladder. Vertically hinged double doors shall be provided at the rear to close the ladder compartment. The doors shall be constructed of double pan aluminum treadplate. Doors shall be latched with Eberhard latches with a locking "D" ring handles. Aluminum treadplate will be provided on the exterior door surface. The following Duo-Safety ladders shall be furnished and must meet or exceed the latest NFPA standards:</p> <p>One (1) 35', two (2) section, aluminum, Series 500-C.</p> <p>One (1) 28', two (2) section, aluminum, Series 500-C.</p> <p>One (1) 24', two (2) section, aluminum, Series 500-C.</p> <p>Two (2) 20' roof, aluminum, Series 575-C, bedded together.</p> <p>One (1) 16' roof, aluminum, Series 575-C.</p> <p>One (1) 8' roof, aluminum, Series 775-A, mounted to fly section.</p> <p>One (1) 10' aluminum, Series 585-A Duo-Safety folding.</p> <p>One (1) 8' 2 section aluminum, Series 300-A x 17" wide (special width, non-NFPA compliant) Duo-Safety combination ladder.</p> <p>12.02 <u>PIKE POLES</u> The following pike poles shall be furnished and stored in tubular holders located in the ground ladder storage compartment:</p> <p>PIKE POLE, 6' Two (2) pike poles 6' long with a Nupla Classic Super Duty I beam fiberglass "D" handle shall be provided and located one (1) in the ladder storage area and one (1) at the aerial tip.</p> <p>PIKE POLE, 8' Two (2) pike pole 8' long with a Nupla Classic Super Duty I beam fiberglass handle shall be provided and located in the ladder storage area.</p> <p>PIKE POLE, 12' One (1) pike pole, 12' long with a Nupla Featherlight fiberglass handle shall be provided and located in the ladder storage area.</p> <p>PIKE POLE, 16' One (1) pike pole, 16' long with a Nupla Featherlight fiberglass handle shall be provided and located in the ladder storage area.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>ROOF VENTILATION HOOK POLE, 6' Two (2) Roof Ventilation Hook Poles, 6' long with a Nupla Classic Super Duty I beam fiberglass "D" handle shall be provided and located in the ladder storage area.</p> <p>12.03 <u>PICKHEAD AXES</u> Five (5) axes with a wood handle, pickhead and a blade shield. The apparatus manufacturer shall mount four (4) axes behind the cab and one at the aerial tip.</p> <p>12.04 <u>MISC. HARDWARE</u> One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.</p> <p>12.05 <u>LIFTING EYE, ROPE RESCUE ATTACHMENT</u> A lifting eye/ rope rescue attachment shall be provided and shipped loose.</p> <p>SECTION XIII. <u>OPTIONS</u> Bidder will provide additional cost or deduction to include any of the following options individually:</p> <p>13.01 <u>PERFORMANCE BOND</u> The bidder shall provide the cost of a 100% performance bond at time of returning executed contract. The company who shall build the apparatus being proposed shall furnish the performance bond. A performance bond issued by a sales representative, or agent, of the manufacturer shall not be acceptable.</p> <p>13.02 <u>VOGEL AUTOMATIC LUBRICATING CHASSIS SYSTEM</u> A Vogel Automatic Lubrication System shall be provided. The lubrication shall be supplied while the vehicle is in motion to allow a uniform application of grease to the locations listed. The electronic control unit that forms part of the system shall activate the pump after an adjustable interval time. The unit shall control and monitor pump operation and report any faults via an indicator light on the driver's dashboard of the cab. Slack Adjusters, Brake Cam Screws, Steering Miter Box, Cab Hinge Pins, Steering Assist Cylinder (If applicable), Tie Rods, Drag Link, King Pins, Spring Pins, Shackle Pins, Onspot drop chain (if option taken).</p> <p>13.03 <u>VOGEL AUTOMATIC LUBRICATING AERIAL SYSTEM</u> A Vogel Automatic Lubrication System shall be provided. The lubrication shall be supplied while the aerial is in operation to allow a uniform application of grease to all points capable of being lubed with this system. The electronic control unit that forms part of the system shall activate the pump after an adjustable interval time. The unit shall control and monitor pump operation and report any faults via an indicator light on the driver's dashboard of the cab.</p> <p>13.04 <u>AUTOMATIC TIRE CHAINS</u> One (1) pair of "On Spot" automatic tire chains shall be provided at the rear. System shall be electric over air operated with switch on cab instrument panel. System to be operable at speeds up to 35 mph.</p> <p>13.05 <u>SANDERS</u> Sanders shall be provided in front of the drive tires. A switch to activate these sanders shall be on the drivers console within easy reach.</p> <p>13.06 <u>AERIAL CREEPER CONTROLS</u> A set of creeper controls that will reduce the speed of the aerial functions (extend/retract, raise and rotate) will be provide at the operators panel and at the tip of the aerial.</p>		

Specifications	Bidder Complies	
	Supplied	Exception
<p>13.07 <u>ALUMINUM WHEELS</u> Aluminum alloy wheels shall be provided instead of painted steel wheels.</p> <p>13.08 <u>WHEEL WELL EXTENSIONS</u> Extendable wheel well extensions (for single drive axle) that can be extended and retracted up to four (4) inches during winter chain usage shall be provided. These will help protect the warning lights and paint from damage due to chain breakage. Contact Fire Department for more details and pictures.</p> <p>13.09 <u>COMPARTMENT LIGHTING</u> Krystal-lite compartment lights shall be provided in each compartment. One (1) strip shall be mounted vertically along each side of the door framing. There shall be a total of twenty four (24) lights provided, two (2) in each compartment.</p> <p>Opening the compartment door shall automatically turn the compartment lighting on.</p> <p>13.10 <u>DAVID CLARK HEADSET SYSTEM</u> A complete 3800 series headset system with radio interface for the officer and driver, and intercom connections for both of them and two positions in the rear of the cab shall be provided along with the tiller compartment. A low impedance headset system shall be provided for the driver's position and the others shall be high impedance with over the head mounting.</p> <p>13.11 <u>AUTOMATIC DOOR LOCKS</u> All Cab and all compartment doors shall have auto electric door locks with FOB control. There will be a hidden switch to be determined later to unlock these doors without the use of the FOB. They shall also be able to unlock with key in case of electrical failure with electric lock mechanism.</p> <p>13.12 <u>AM/FM STEREO RADIO</u> An AM/FM stereo radio with CD player shall be installed with four (4) speakers, two (2) up front, and two (2) in the rear of the cab.</p> <p>13.13 <u>CAB ROOF EXTENSION</u> The crew cab section shall have a 10 "raised roof with an overall cab height that will not exceed the height of the ladder when stowed. Windows shall also be provided along the front and rear of the raised roof section of the cab. The crew cab doors shall extend into this raised roof section for easy entry, and located on the side of the cab.</p> <p>13.14 <u>HYDRAULIC POWER SUPPLY</u> Provision shall be made for the mounting of Fire Department's Hurst Quantum hydraulic power units on the passenger's side rear on the rollout tray.</p> <p>13.15 <u>HYDRAULIC RAM TOOL MOUNT</u> Bracketry shall be installed for the mounting of a Hurst hydraulic ram # 66558 tool in compartment on the passenger's side rear on the rear wall. All bracketry shall be of aluminum construction for strength and easy removal of tools.</p> <p>13.16 <u>HYDRAULIC SPREADER TOOL MOUNTING</u> Bracketry shall be installed for the mounting of Hurst hydraulic spreaders # 1961 on the slide-out tray in the passenger side rear compartment. All bracketry shall be of aluminum construction and bolted in place for strength and easy removal of tools. A bracket that holds the tool in a horizontal orientation shall be installed.</p>		

Specifications

Bidder Complies

Supplied Exception

13.17 HYDRAULIC CUTTER TOOL MOUNTING

Bracketry shall be installed for the mounting of a Hurst hydraulic cutter #34376 on the slide-out tray in the passenger side rear compartment. All bracketry shall be of aluminum construction and bolted in place for strength and easy removal of tools. A bracket that holds the tool in a horizontal orientation shall be installed.

SECTION XIV. BID PREPARATION AND EVALUATION

14.01 PREPARATION OF BIDS

All bids shall be typed or printed in ink, prepared in triplicate on the form furnished by the Purchaser and signed by an authorized person of Bidder's firm. If errors are made, they may be crossed out. Corrections shall be printed in ink or typewritten adjacent and initialed in ink by the person signing the bid. IF THE BIDS CONTAIN ANY OMISSION, ERASURES, ALTERATIONS, ADDITIONS, OR ITEMS NOT CALLED FOR IN THE PROPOSAL, OR CONTAIN IRREGULARITIES OF ANY KIND, IT MAY CONSTITUTE SUFFICIENT CAUSE FOR REJECTION.

14.02 PREPARATION OF ENVELOPES

Place each copy of the bid in a separate sealed envelope. On the front of each envelope, place the following information:

"SEALED BID - IMPORTANT"
TRACTOR DRAWN AERIAL
OPENING DATE AND TIME
COMPANY NAME

14.03 SUBMISSION OF BIDS

Submit three copies of the bid, as follows:

Original bid to: City Clerk, City Hall, 5th Floor
808 West Spokane Falls Blvd., Spokane WA 99201-3342

Two (2) copies to: Purchasing Director, City Hall, Room B08
808 West Spokane Falls Blvd., Spokane WA 99201-3316

The Purchaser is not responsible for bids delivered late. It is the responsibility of the Bidder to be sure the bids are sent sufficiently ahead of time to be received NO LATER THAN 1:00 P.M. on the opening date.

14.04 INTERPRETATION

If the Bidder discovers any errors, discrepancies or omissions in the bid specifications, or has any questions about the specifications, the Bidder must notify the Purchasing Director in writing. Any addenda issued by the Purchaser will be incorporated into the contract or purchase order.

14.05 WITHDRAWAL OF BIDS

Bidders may make written request to the Purchasing Director for withdrawal of a sealed bid prior to the scheduled bid opening. Unless otherwise specified, no bids may be withdrawn for a minimum of thirty (30) calendar days after the opening date.

14.06 EVALUATION OF BIDS

Evaluation of bids shall be based upon the following criteria, where applicable:

- a) The price, including the effect of discounts. Price may be determined by life cycle costing or total cost bidding, when advantageous to the Purchaser.
- b) The quality of the items bid, their conformity to specifications and the purpose for which they are required.
- c) The Bidder's ability to provide prompt and efficient service and/or delivery.
- d) The character, integrity, reputation, judgment, experience and efficiency of the Bidder.
- e) The quality of performance of previous contracts or services.
- f) The previous and existing compliance by the Bidder with the laws relating to the contract or services.

- g) Uniformity or interchangeability.
- h) The energy efficiency of the product throughout its life.
- i) Any other information having a bearing on the decision to award the contract.

14.07 BIDDING ERRORS

When, after the opening and tabulation of bids, a Bidder claims error, and requests to be relieved of award, he will be required to promptly present certified work sheets. The Purchaser will review the work sheets and if the Purchaser is convinced, by clear and convincing evidence, that an honest, mathematically excusable error or critical omission of costs has been made, the Bidder may be relieved of his bid.

14.08 BIDDER PREQUALIFICATION

Prior to award of contract or purchase, Bidders shall be required to submit evidence of sufficient facilities, equipment, experience and financial ability to insure completion of the work, unless waived by the Purchaser.

14.09 REJECTION OF BIDS

The Purchaser reserves the right to reject any or all bids; to waive minor deviations from the specifications, to waive any informality in bids received, whenever it is in the Purchaser's best interest, and to accept or reject all or part of this bid at prices shown.

14.10 AWARD OF CONTRACT

Award of contract or purchase, when made, will be to the Bidder whose bid is the most favorable to the Purchaser, taking into consideration price and the other evaluation factors. STATE CONTRACTS WHERE APPLICABLE WILL BE CONSIDERED AS A BID. City Council shall make the award of contract or purchase. Unsuccessful Bidders will not automatically be notified of bid results.

SECTION XV. GENERAL TERMS AND CONDITIONS

15.01 DEFINITIONS

- a) Bidder--One who submits a bid.
- b) Vendor--Bidder to whom contract or purchase order is awarded.
- c) Purchaser--City of Spokane and other government agencies (Pursuant to RCW 39.34).
- d) Destination Delivery--Delivery to Purchaser's building location.
- e) Until Further Notice--Any time in excess of sixty (60) days from date of opening.
- f) Cost--Total cost of ownership based on the best available information.

15.02 CONTRACT PERIOD

The contract shall begin on signing by both parties, and terminate on FINAL ACCEPTANCE

15.03 RENEWAL

The contract may not be renewed.

15.04 NON-ESCALATION

The Vendor's prices shall be firm throughout the contract period with NO provision for price increases unless specific provisions are proposed and agreed upon.

15.05 INVENTORY

Sufficient inventory to supply the needs of the Purchaser shall be maintained by the Vendor.

15.06 CATALOGS AND PRICE SHEET

A. Vendor shall furnish all necessary catalogs and price sheets. Approximately 3 are required and shall be individually sent to each location included on the mailing lists to be provided by Purchasing Director. Initial catalog mailing shall be accomplished within thirty (30) days of contract award.

B. Vendor shall furnish new price lists in the above amount when price changes are incorporated into the contract.

15.07 DELIVERY DEFAULT

A. The acceptance of late performance by the Purchaser shall not waive the right to claim damage for such breach nor constitute a waiver of the requirements for the timely performance of any obligations remaining to be performed by Vendor.

B. When items ordered are not delivered within the terms and time frame established by the contract. Purchaser may procure comparable units from another source and Vendor will be required to pay any differences in cost.

15.08 DELIVERY DELAY

In the event of delivery delay beyond the date specified in the bid, the Purchaser shall assess, as liquidated damages \$100.00 per day beyond the completion date specified. The Purchaser shall have the right to deduct and retain the amount of such liquidated damages from any monies due or which may become due the Vendor or to initiate legal proceedings for the collection of same. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above specified period with the permission of the bidder shall not constitute acceptance.

SECTION XVI. STANDARD TERMS AND CONDITIONS

16.01 PATENTS, TRADEMARKS AND COPYRIGHTS

The Vendor warrants the items to be furnished do not infringe any patent, registered trademark or copyright, and agrees to hold Purchaser harmless in the event of any infringement or claim thereof.

16.02 TITLE

The Vendor warrants that the items to be furnished are free and clear of all liens and encumbrances and that the Vendor has good and marketable title to same.

16.03 COMPLIANCE WITH LAWS

The Vendor shall comply with all applicable federal, state and local laws, rules, and regulations, affecting its performance and hold the Purchaser harmless against any claims arising from the violation thereof.

16.04 OVERCHARGES

The Vendor assigns to the Purchaser any claims for anti-trust violations or overcharges relating to items purchased in filling the Purchaser's orders. The Vendor warrants that its suppliers will also assign any such claims.

16.05 WARRANTIES

The Vendor warrants that the items furnished will conform to its description and any applicable specifications, shall be of good merchantable quality and fit for the known purpose for which sold. This warranty is in addition to any standard warranty or service guarantee by Vendor to the Purchaser.

16.06 UNIFORM COMMERCIAL CODE

The Uniform Commercial Code (UCC), as effective in Washington State, RCW Title 62A, shall determine the rights and duties of the Vendor and the Purchaser.

16.07 NON-DISCRIMINATION

No individual shall be excluded from participation in, denied the benefit of, subject to discrimination under, or denied employment in the administration of or in connection with this contract because of race, color, creed, marital status, familial status, religion, sex, sexual orientation, national origin, Vietnam era or disabled veteran's status, age, or disability. The Contractor shall comply with all applicable federal, state and local nondiscrimination laws, regulations and policies.

16.08 SAVE HARMLESS

Vendor shall protect, indemnify and save the Purchaser harmless from and against any damage, cost or liability for any injuries to persons or property arising from acts or omissions of Vendor, his employees, agents or sub-contractors, howsoever caused.

16.09 TAXES

- a) FEDERAL. The Purchaser is exempt from federal excise taxes. Exemption certificates will be furnished on request.
- b) SALES TAX. Sales tax shall not be included in the prices submitted to the City in Vendor's bid. It should be added as a separate item on the invoice only.
- c) Business, occupational and personal property taxes are the responsibility of the Vendor.

16.10 BRAND NAME "OR EQUAL"

Brand names and numbers, when used, are for the purpose of indicating the desired quality, performance or use. Vendors may offer other brands of comparable or better quality, performance and use. Descriptive literature shall also be submitted, when available. Any bid containing a brand which is not of equal quality, performance or use, must be represented as an alternate and not as an equal.

16.11 QUANTITIES

Quantities, when used, are estimates only and are given for the purpose of comparing bids on a uniform basis. Quantities shall be bid on a more or less basis. Payment will be made only for quantities actually ordered, delivered and accepted, whether greater or less than the stated amounts.

16.12 ASSIGNMENTS

The provisions or monies due under the contract or purchase order shall be assignable only with the prior consent of the Director of Purchasing.

16.13 CHANGES

No alteration in any of the terms, conditions, delivery, price, quality or specifications of items ordered will be effective without the written consent of the Director of Purchasing.

16.14 DEFAULT

The Vendor agrees that if a law suit is instituted by the Purchaser for any default on the part of the Vendor, and the Vendor is adjudged to be in default, it shall pay to the Purchaser all costs and expenses, expended or incurred by the Purchaser in connection therewith, and reasonable attorney's fees. Venue shall be in the County of Spokane, Washington.

16.15 REJECTION

All items purchased herein are subject to approval by the Purchaser. Any rejection of items resulting because of non-conformity to the terms or specifications of this order whether held by the Purchaser or returned, will be at the Vendor's risk and expense.

16.16 TERMINATION

In event of a breach by Vendor of any of the provisions of this order, Purchaser reserves the right to terminate upon immediate oral or written notification to the Vendor. Vendor shall be liable for damages suffered by the Purchaser resulting from Vendor's breach of contract.

16.17 MINORITY BUSINESS OPPORTUNITIES

Purchaser actively solicits the participation of all qualified minority Vendors in the bidding of any and all goods or services.

16.18 FREIGHT TERMS

- a) The Purchaser reserves the right to be advised of selection of method of transportation.
- b) No charges will be allowed for handling.
- c) All invoices, packing lists, packages, shipping notices, instruction manuals, and other written documents affecting this order shall contain the applicable purchase order number and/or contract number. Invoices will not be processed for payment until all items invoiced are received and accepted.
- d) Risk of Loss. The FOB point shall be the delivery address at the City of Spokane Fire Department. Vendor agrees to bear all risks of loss, injury or destruction of items ordered herein which occur prior to delivery. Such loss, injury or destruction shall not release Vendor from any obligation hereunder.

16.19 VENDOR'S COOPERATION

The Vendor shall communicate with the City Purchasing Director and shall actively cooperate in all matters pertaining to this contract or purchase in any way the Purchasing Director may direct to the end that the Purchaser shall receive efficient and satisfactory service.

16.20 CONTRACT DISPUTES

Any contract agreement shall be performed under the laws of the State of Washington. Any litigation to enforce such agreement or any of its provisions shall be brought in Spokane County, Washington.

SECTION XVII.

INDEX

"DO NOT MOVE APPARATUS" INDICATOR LIGHT AND BUZZER	40	BATTERY TRAYS.....	30
12 VOLT POWER POINTS	41	BID PREPARATION AND EVALUATION.....	68
120 VOLT EXTERIOR RECEPTACLE (GENERATOR	45	BIDDER PREQUALIFICATION.....	69
120 VOLT INTERIOR RECEPTACLE (SHORELINE).....	45	BIDDING ERRORS	69
120 VOLT LIGHTING.....	45	BODY & COMPARTMENTS	31
120-VOLT LIGHTING	45	BODY FENDER CROWNS	38
ADDITIONAL DOCUMENTATION	63	BODY WARRANTY.....	62
ADJUSTABLE SHELVES.....	37	BRAKE LINES.....	13
AERIAL CREEPER CONTROLS.....	66	BRAKE SYSTEM	13
AERIAL DEVICE PAINT COLOR	60	BRAKES.....	12
AERIAL MONITOR.....	55	BRAKING CONTROL SYSTEM.....	59
AERIAL SIGN	61	BRAND NAME "OR EQUAL"	71
AERIAL STRUCTURAL WARRANTY.....	62	BUMPER	20
AERIAL WATERWAY INLET	55	BUZZER WARNING SYSTEM	58
AGGRESSIVE WALKING SURFACE	32	CAB	17
AIR BOTTLE STORAGE	39	CAB DOOR LOCKS.....	19
AIR COMPRESSOR, BRAKE SYSTEM.....	12	CAB HEATER	22
AIR CONDITIONING.....	23	CAB INSTRUMENTATION	23
AIR HORN SYSTEM.....	47	CAB INTERIOR.....	21
AIR INLET WITH AUTOMATIC EJECT.....	13	CAB INTERIOR LIGHTING.....	22
AIR TANK, ADDITIONAL	13	CAB INTERIOR UPHOLSTERY	21
ALL WHEEL LOCK-UP	13	CAB LIFT.....	20
ALTERNATOR.....	30	CAB ROOF EXTENSION	66
ALUMINUM WHEELS.....	66	CAB SEATING	21
AM/FM STEREO RADIO	66	CAB WARRANTY	62
AMP DRAW REPORT	31	CAFS FOAM SYSTEM.....	38
ANGLE OF APPROACH AND DEPARTURES	10	CATALOGS AND PRICE SHEET	70
ANTI-LOCK BRAKE SYSTEM	12	CHANGES	71
ANTI-LOCK BRAKE SYSTEM & ATC WARRANTY	62	CIRCUIT BREAKER PANEL	45
APPROVAL DRAWING	9	CIRCUIT PROTECTION AND CONTROL DIAGRAM.....	27
ASSIGNMENTS	71	COMMUNICATION SYSTEM.....	54
AUTO-EJECT RECEPTACLE	30	COMPARTMENT LIGHTING	41, 66
AUTOMATIC DOOR LOCKS.....	66	COMPARTMENT MATTING	35
AUTOMATIC TIRE CHAINS.....	66	COMPARTMENT, REAR	35
AUTOMATIC TRACTION CONTROL.....	12	COMPARTMENTS, DRIVER'S SIDE.....	33
AUXILIARY STABILIZER PADS	52	COMPARTMENTS, PASSENGER'S SIDE...	34
AWARD OF CONTRACT.....	69	COMPLIANCE WITH LAWS	70
BACKBOARD STORAGE COMPARTMENT	35	CONSTRUCTION STANDARDS	47
BACK-UP ALARM.....	38	CONTRACT PERIOD	69
BATTERY CHARGER	29	CONVEX MIRRORS (tiller cab).....	58
BATTERY COMPARTMENTS.....	29	COOLANT LINES.....	15
BATTERY SYSTEM.....	29	CRADLE INTERLOCK SYSTEM	53
		CREW CAB HEATER	22
		CREW CAB INTERIOR LIGHTING.....	22
		CREW CAB WINDOWS	19
		DAVID CLARK HEADSET SYSTEM	66

INDEX

DECK LIGHTS	59	FRONT AXLE WARRANTY	62
DEFAULT.....	71	FUEL PUMP	16
DEFFOGER FANS.....	23	FUEL SEPARATOR.....	15
DEFFOGER FANS.....	58	FUEL SHUTOFF.....	16
DEFINITIONS.....	69	FUEL TANK.....	16
DELIVERY	7	GENERAL FEATURES:.....	6
DELIVERY DEFAULT.....	70	GENERAL INSTRUCTIONS	4
DELIVERY DELAY	70	GENERAL PROCEDURES.....	60
DIRECTIONAL (Front)	31	GENERAL TERMS AND CONDITIONS.....	69
DOORS, SIDE COMPARTMENT.....	35	GENERAL WARRANTY	61
DRIVELINE	16	GENERATOR LOCATION	45
ELECTRIC CORD.....	46	GENERATOR START	45
ELECTRIC CORD REEL	45	GRAVEL PAN	20
ELECTRIC SWIVEL.....	54	GROUND LADDERS.....	64
ELECTRIC WINDOWS (cab doors).....	19	GVW RATING.....	10
ELECTRIC WINDOWS(crew cab doors)....	19	HAND HELD SPOTLIGHT	41
ELECTRICAL.....	39	HANDRAILS.....	38
ELECTRICAL POWER CONTROL SYSTEM	26	HEADLIGHT FLASHER	47
ELECTRICAL SYSTEM DESIGN for		HEATER/DEFROSTER.....	58
ALTERNATING CURRENT	41	HIGH IDLE.....	15
ELECTRICAL WIRING DIAGRAMS.....	40	HONDA 5KW SINGLE PHASE GENERATOR	
ELECTRONIC LOAD MANAGER	30	44
ELECTRONIC SIREN	47	HOSE TRAY	38
ELEVATION SYSTEM	49	HYDRAULIC CUTTER TOOL MOUNTING...67	
EMERGENCY PUMP	54	HYDRAULIC POWER SUPPLY	67
EMI/RFI PROTECTION.....	28	HYDRAULIC RAM TOOL MOUNT.....	67
ENGINE.....	14	HYDRAULIC SPREADER TOOL MOUNTING	
ENGINE AIR INTAKE	14	67
ENGINE BRAKE	12	HYDRAULIC SWIVEL	54
ENGINE COMPARTMENT LIGHT.....	22	HYDRAULIC SYSTEM	53
ENGINE INSTALLATION CERTIFICATION.	14	INDEX.....	73
ENGINE WARRANTY.....	62	INDICATOR LIGHT AND ALARM PROVE-	
EVALUATION OF BIDS.....	68	OUT	28
EXHAUST SYSTEM.....	14	INFORMATION CENTER.....	24
EXTENSION/RETRACTION SYSTEM	49	INFORMATION REQUIRED.....	7
EXTERIOR LIGHTING	31	INSPECTION CERTIFICATE	56
FAILURE TO MEET TEST.....	8	INSPECTION TRIP(S).....	63
FENDER CROWNS	19	INSURANCE REQUIREMENTS.....	8
FENDER PANELS	11	INTENT OF SPECIFICATIONS.....	6
FIFTH WHEEL	11	INTERIOR PAINT (Cab).....	21
FLOOR MOUNTED TRAYS.....	37	INTERLOCK, CAB LIFT TO PARKING	
FLOW METER	55	BRAKE	20
FOLD UP SEATS.....	22	INTERPRETATION	68
FOLDING STEPS	48	INVENTORY	69
FOUR (4)-SECTION 100 FOOT TRACTOR-		JACKKNIFE ALARM	58
DRAWN AERIAL	47	JUMPER STUDS.....	29
FRAME.....	10	KEEP BACK WARNING SIGN	61
FRAME RAIL WARRANTY	63	KEYED LOCK(S).....	33
FREIGHT TERMS	72	LADDER CONSTRUCTION	48
FRONT AXLE	10	LIABILITY.....	8

INDEX

LIFTING EYE, ROPE RESCUE ATTACHMENT	65	PIKE POLES	65
LIGHTBAR.....	46	POWER AND GROUND STUDS	28
LIGHTS, FRONT ZONE LOWER.....	46	PREPARATION OF BIDS	68
LOOSE EQUIPMENT.....	64	PREPARATION OF ENVELOPES.....	68
LOUVERS	32	PRESSURE FILTER.....	54
LUG NUT COVERS	17	QUALITY AND WORKMANSHIP	7
MANUAL FLUID CHECK ACCESS.....	14	QUANTITIES	71
MANUAL, AERIAL.....	63	RADIATOR.....	15
MANUAL, BODY.....	63	RADIO ANTENNA MOUNT.....	28
MANUAL, CAFS	63	REAR AXLE	10
MANUAL, CHASSIS OPERATION.....	63	REAR AXLE WARRANTY	62
MANUAL, CHASSIS PARTS.....	63	REAR BUMPER	59
MANUAL, CHASSIS SERVICE	63	REAR FMVSS LIGHTING	40
MANUAL, GENERATOR.....	63	REAR WARNING LIGHTS	46
MANUALS	63	REAR ZONE LOWER LIGHTING	46
MAP BOX.....	20	REFLECTIVE BAND	61
MASTER BATTERY SWITCH	29	REJECTION	71
MESSAGES, DISPLAY, Do Not Move Truck	41	REJECTION OF BIDS.....	69
MINORITY BUSINESS OPPORTUNITIES ...	72	RENEWAL.....	69
MIRRORS	20	RETURN FILTER	54
MISC. HARDWARE	65	ROOF VENTILATION HOOK POLE, 6'	65
MISC. MOUNTS.....	29	ROTATION INTERLOCK	50
MOLDING (on sides of cab).....	20	ROTATION SYSTEM	49
MOUNTING TRACKS.....	36	RUB RAIL.....	38
MUD FLAPS	17	SANDERS	66
NON-DISCRIMINATION	71	SAVE HARMLESS	71
NON-ESCALATION	69	SCANN	14
OIL SEALS	10, 11, 59	SCOTCH-LITE STABILIZER BEAM STRIPING	53
ON-BOARD ELECTRICAL SYSTEM		SEAT UPHOLSTERY	21
DIAGNOSTICS	27	SEATING (Forward Facing Crew Cab)	21
ONE WAY UTILITY TRAY	36	SEATING CAPACITY.....	10
OPTIONS	65	SEQUENCER	30
OVERCHARGES	70	SERVICE AND MAINTENANCE	
PAINT.....	60	DIAGNOSTICS	28
PAINT AND CORROSION WARRANTY	62	SHOCK ABSORBERS	10
PAINT CHASSIS FRAME ASSEMBLY	60	SHOULDER HARNESS HEIGHT	
PAINT, COMPARTMENT INTERIOR	60	ADJUSTMENT	21
PATENTS. TRADEMARKS AND		SIDE ZONE LOWER LIGHTING	46
COPYRIGHTS.....	70	SINGLE SOURCE MANUFACTURER.....	8
PERFORMANCE BOND.....	65	SLIDE OUT TOOL BOARD.....	36
PERFORMANCE TESTS AND		SPEAKERS	47
REQUIREMENTS.....	7	SPOTLIGHTS	50
PERIMETER SCENE LIGHTS, BODY.....	41	STABILITY ALARM	52
PERIMETER SCENE LIGHTS, CAB	41	STABILITY SENSING SYSTEM	53
PICKHEAD AXES	65	STABILIZER ALARM.....	52
PIKE POLE STORAGE.....	39	STABILIZER CONTROL STATION	51
PIKE POLE, 6'	65	STABILIZER SCENE LIGHTS	52
PIKE POLE, 8'	65	STABILIZER WARNING LIGHTS	52
		STABILIZERS	51

INDEX

STANDARD TERMS AND CONDITIONS	70	TRAILER TIRES.....	59
STEERING	16	TRAINING.....	64
STEERING CRAMP ANGLE CERTIFICATION		TRAINING PROGRAM.....	64
.....	10	TRANSMISSION	16
STEP LIGHTS.....	40	TRANSMISSION COOLER.....	16
SUBMISSION OF BIDS	68	TRANSMISSION WARRANTY	62
SUSPENSION.....	11	TURNTABLE	48
SUSPENSION, REAR.....	11	TURNTABLE ACCESS STEPS	39
SWITCH PANELS.....	26	TURNTABLE CONTROL CONSOLE.....	50
TABLE OF CONTENTS.....	3, 9	TWO-WAY UTILITY TRAY.....	37
TAKEOFF / HYDRAULIC PUMP	53	UNDERBODY SUPPORT SYSTEM.....	32
TAXES	71	UNDERCOATING, CAB & BODY.....	61
TERMINATION	71	UNIFORM COMMERCIAL CODE	70
TESTING OF BODY DESIGN.....	33	VEHICLE STABILITY	8
TILLER CAB	57	VELVAC MIRROR WARRANTY.....	62
TILLER CAB SEAT	58	VENDOR'S COOPERATION.....	72
TILLER CAB STEPS	58	VIDEO TRAINING TAPES	63
TILLER TRAILER FRAME.....	56	VOGEL AUTOMATIC LUBRICATING	
TILLER WARNING INDICATOR	58	SYSTEM	65, 66
TIRES.....	17	VOLTAGE MONITOR SYSTEM.....	28
TITLE	70	WALKWAY, TURNTABLE TO BODY	59
TOP SPEED OF VEHICLE	11	WARNING LIGHTS	46, 47
TOW EYES	38	WARRANTIES.....	70
TOW HOOKS.....	20	WARRANTY	9, 61
TRACTOR CHASSIS.....	10	WATER SWIVEL	54
TRAILER ABS BRAKING SYSTEM.....	59	WATER SYSTEM	54
TRAILER AXLE	59	WATERWAY LOCKING SYSTEM	55
TRAILER AXLE WARRANTY	62	WHEEL CHOCKS	17
TRAILER BRAKES.....	59	WHEEL WELL EXTENSIONS.....	66
TRAILER STEERING SYSTEM.....	59	WHEELBASE	10
TRAILER SUSPENSION	59	WITHDRAWAL OF BIDS	68