NOTICE TO BIDDER
(PLEASE USE THE ENCLOSED BID SHEETS)

NOTICE IS HEREBY GIVEN that the Board of County Commissioners of Custer County, Oklahoma will, on November 3, 2014 until the hour of 10:30 a.m. on said day, in their office in the Courthouse in Arapaho, Oklahoma, receive sealed bids for the following:

Minimum Specifications For
One Class A Pumper Fire Apparatus
Custer County, Oklahoma

Specifications and information are on the file in the Custer County Clerk's Office in Arapaho, Oklahoma.

All bids must be in a sealed envelope, clearly marked BID, with the BID OPENING DATE.

All bids must be mailed or delivered to:

(Mailing)
CUSTER COUNTY CLERK'S OFFICE
P.O. BOX 300
ARAPAHO, OKLAHOMA 73620-0300

(Physical)
CUSTER COUNTY CLERK'S OFFICE
675 WEST "B" STREET
ARAPAHO, OKLAHOMA 73620-0300

Please follow all instructions for submitting bid proposals completely.

/S/ KAREN FRY, CUSTER COUNTY CLERK
(SEAL)

INSTRUCTIONS FOR SUBMITTING BID PROPOSALS

1. This entire packet (Notice, Instructions, Minimum Specifications and Affidavit) shall be known as the "Invitation to Bid" form. Fill out the "Invitation to Bid" form *completely*.

2. Identify the outside of the sealed envelope as follows:
   SEALED BID
   CLOSING (Bid Date)
   BID (Opening Time)

3. Place your company name and return address on the outside of the envelope.

4. File the bid proposal with the Custer County Clerk, either by mail or in person, until 10:30 o'clock a.m. on November 3, 2014. Bids received after this time will be rejected and unopened. All bids will be opened at 10:30 o'clock a.m., November 3, 2014 during the County Commissioner's meeting held in the Custer County Courthouse, Arapaho, Oklahoma, Room 104, at 675 West "B" Street, Arapaho, Oklahoma.

5. All forms must be filled out completely. Any incomplete forms could result in rejection if the Board of County Commissioners considers such action to be in the best interest of Custer County.

6. The address of the Custer County Clerk is as follows:

(Mailing)	*(Physical)*
CUSTER COUNTY CLERK'S OFFICE	CUSTER COUNTY CLERK'S OFFICE
P.O. BOX 300	675 WEST "B" STREET
ARAPAHO, OKLAHOMA 73620-0300	ARAPAHO, OKLAHOMA 73620

7. All bid information shall be typewritten, or legibly written in ink. All corrections shall be initialed by the person signing the form(s).

8. On all bids requiring services or contract labor, proof of liability insurance may be required. Read the bid specifications carefully.

9. FOR PROMPT PAYMENT OF ALL INVOICES, PLEASE NOTE:
   * Payment for maintenance & operational expenses for Custer County is made once a month. Approval of said claims is made on the second Monday of each month. For your claim to be considered for payment, the product(s) or service(s) must be delivered, and the appropriate paperwork on file with the County Clerk's office no later than five working days prior to the second Monday of the month.
   * If the proper invoices and supporting documentation are not received by the monthly cut-off date, payment will be rendered during the following month's business.
   * Please contact Karen Fry, Custer County Clerk, for a schedule for invoice submission in order to expedite payment processing.

10. If you have any questions regarding the bid specifications, or the bid deadlines, etc., please contact Karen Fry, Custer County Clerk or Debbie Bright, Purchasing Agent at (580) 323-4420.

NOTE: ALL BID PROPOSALS WHICH DO NOT CONTAIN THE "INVITATION TO BID" AND THE SIGNED/NOTARIZED "AFFIDAVIT FOR FILING WITH COMPETITIVE BID", WILL BE INVALID AND REJECTED.

MINIMUM SPECIFICATIONS

OPTION A – COMMERCIAL:

INTENT OF SPECIFICATIONS

Compliance
YES NO

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The National Fire Protection association Standard 1901, 2009 edition, unless otherwise specified in these specifications, shall prevail.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in continuous business for a minimum of thirty-five (35) years. A written chronological history of the bidder shall be included in the bid response package.

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. They shall also show that they are in a position to render prompt service and to furnish replacement parts for said apparatus.

Because of the severe service requirements the department will impose on this apparatus, each bidder shall provide a reference list of at least eight (8) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one (1) year. This list shall include contact names and phone numbers. To properly evaluate the builder's performance, at least one (1) of these departments shall serve populations of over 200,000, and the apparatus in this department shall been in service over seven (7) years. This reference list shall be included in the bidder's response package.

No experimental, prototype or recently introduced products without a verifiable, minimum four (4) year service record on the combination of the chassis and fire equipment proposed will be acceptable. For bid evaluation purposes, this information, including photographs and drawings of units previously constructed, shall be included in the bid response package.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare bid. There shall be no exception to this requirement.

These specifications shall indicate size, type, model and make of all component parts and equipment. _____ _____

QUALITY AND WORKMANSHIP:

The design of the apparatus must embody the latest approved automotive engineering practices.

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units that require periodic maintenance operations, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under "Performance tests and requirements".

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair. _____ _____

DELIVERY:

Since this vehicle is needed, it is desired that delivery of the vehicle, meeting these specifications, shall be provided within two hundred forty (240) calendar days from

	Compliance YES	NO
date of award of bid.		
Apparatus, to insure proper break-in of all components while still under warranty, shall be delivered under its own power. A qualified delivery engineer representing the contractor shall instruct the Fire Department Personnel in the proper operation, care and maintenance of the equipment delivered.	_____	_____

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 will be made, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall not have less than 25% nor more than 55% of the weight on the front axle and not less than 45% nor more than 75% on the rear axle. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

A. 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.

B. From a steady pace of 15 MPH the vehicle shall accelerate to 35 MPH within 30 seconds. This shall be accomplished without moving the gear selector.

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

D. The apparatus, fully loaded, shall be capable of obtaining a minimum speed of 50 miles per hour on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).	_____	_____

LIABILITY:

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance furnished under the contract.	_____	_____

GENERAL CONSTRUCTION:

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of NFPA #1901.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator, without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance of 2000 lbs. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance of 2,000 lbs.

The unequipped personnel weight shall be calculated at 250 lbs. per person, times the maximum number of persons to ride on the apparatus.

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

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

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

	Compliance YES	NO
The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.		
Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.	_____	_____

EXCEPTIONS OR CLARIFICATIONS TO SPECIFICATIONS

These specifications have been carefully prepared by the Department, taking into consideration, among other items, performance of our previous apparatus. In order to provide a unit that we know will give outstanding performance in our particular operating environment, the following Chassis, Pump and Body specifications shall be strictly adhered to. Exceptions or Clarifications shall be allowed if they are judged by the department to be equal to or superior to those items specified, and will be given careful consideration provided they are listed and fully explained on a separate page entitled "Exceptions or Clarifications to Specifications". This list must refer to our specification page number and paragraph. Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Body or Pump, will not be accepted. Apparatus shall be inspected upon delivery for compliance with specifications. Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications. Failure to provide this information shall be cause to reject the proposal as being non-responsive.	_____	_____

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deems to be of their best interest to do so.	_____	_____

CHASSIS STORAGE

The chassis on which this apparatus will be constructed, shall not be stored where it will be exposed to the sun, rain, snow, hail or other elements. The chassis shall be stored in an enclosed, protected environment until construction is begun. For evaluation purposes, photographs and a detailed description of the chassis storage provisions shall be included in the bid response package. There shall be no exception to these protected chassis storage provisions.	_____	_____

BLUEPRINT DRAWINGS

All bidders must submit with their proposal blueprint drawings of the exact apparatus being proposed. Drawings of similar units **will not** be acceptable. Blueprints must be submitted on minimum "D" size, 24" x 36" paper to allow for an accurate, easy to read, visual interpretation of the apparatus proposed by the manufacturer.

The drawings shall show the complete left side view of the apparatus, including the chassis as well as right side and rear body views showing all compartment dimensions, door opening sizes, compartment depths, and total square foot of usable compartment space per compartment.

Any proposal received without these required drawings will be immediately rejected. Panel layout approval drawings, shall be included in the bid proposal package.	_____	_____

PRODUCT LIABILITY INSURANCE

To adequately protect the Department, and its members, the manufacturer shall provide a minimum of $15,000,000.00 of liability insurance. A copy of the insurance certificate shall be included in the bidder's response package.	_____	_____

DELIVERY

The unit shall be delivered under its own power, by a factory-trained representative. Bids that do not include delivery to the purchaser, shall not be acceptable. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.	_____	_____

Compliance
YES NO

PUMP & APPARATUS TRAINING

The successful bidder shall provide a structured training course for personnel assigned to operate the apparatus, covering nomenclature of components, proper operation of the apparatus, daily operational maintenance checks, and other information necessary for a firefighter/driver/engineer to properly operate and maintain the apparatus.

It is intended that this training be organized in such a manner that both the mechanics and fire personnel receive full benefit of the aforementioned structured training. The firefighter/operator training shall be conducted within one week after the vehicle is fully accepted and readied for service by the "Purchaser" or at a time mutually agreed upon by the "Purchaser" and "Supplier". _____ _____

WARRANTIES

The bidder shall submit copies of all warranties pertaining to the apparatus being bid. This shall include, at a minimum, the following:

1. Chassis and chassis components warranties--Minimum one (1) year
2. Bumper to bumper fire apparatus warranty--Minimum one (1) year
3. Pump warranty--Minimum five (5) years
4. Apparatus body corrosion perforation structural warranty, non-pro-rated— Minimum of ten (10) years
5. Tank warranty--Lifetime or Unlimited Time
6. Paint warranty, non-pro-rated--Minimum of ten (10) years _____ _____

INFORMATION FOR CONTRACTORS

Sealed proposals are desired from reputable manufacturers of Automotive Fire/Rescue Apparatus in accordance with these attached specifications for the apparatus as briefly described below:

One commercial class A pumper. _____ _____

GENERAL REQUIREMENTS

Each bid must be accompanied by bidders accurate written and detailed specifications covering the apparatus and related items which the bidder is proposing to furnish and to which the apparatus furnished under contract must conform. It is the intent of these specifications to cover the furnishing to the Purchaser a complete apparatus constructed and equipped exactly as specified in the attached specifications. Any details of construction, materials, or equipment not specified are left to the discretion of the Contractor, whom will be responsible for all construction and manufacturing techniques involved in the assembly of the apparatus.

All aspects of the apparatus shall conform to any applicable rules/regulations imposed to such vehicles by any of the following Governing Agencies:

- National Fire Protection Association (not including recommended equipment).
- Occupational Safety Health Administration.
- Federal Motor Vehicle Safety Standards.
- Department of Transportation.
- Underwriters Laboratories. _____ _____

RELIABILITY OF CONTRACTOR/BIDDER

The contractor/bidder shall furnish evidence that he has the ability to design, engineer and construct the apparatus specified and shall clearly state the location of the facility used to manufacture and test the equipment when completed. Manufacturer must have a minimum of a twenty year track record in the manufacturing of fire/rescue apparatus.

The contractor/bidder shall be capable of performing all of the following items at their manufacturing facility. Under no circumstance shall any of these items be sub-contracted to other manufacturers or fabricators:

1. All pump mounting and related plumbing.
2. Complete fabrication of the apparatus body and components.
3. All 12 volt and 110 volt electrical wiring.
4. All painting and finish work.

	Compliance YES	NO
Any contractor/bidder that does not perform all of the above items shall be rendered un-responsive and their bid proposal shall be eliminated from the bid evaluation procedure causing rejection of bid.	_____	_____

EXCEPTIONS TO SPECIFICATIONS

It is the intent of the Purchaser to purchase a fire/rescue apparatus that has a proven record of dependability and reliability in the fire/rescue service. Experimental manufacturing techniques or materials are not acceptable and will be immediately rejected. Exceptions to the attached specifications will be considered provided they are of equal or superior quality and/or value of what has been specified. All bidders shall provide supporting documentation with proposal that may prove the 'equal to' or 'superior' quality or value. The Purchaser shall be solely responsible for determining 'equal to' or 'superior' status. The Purchaser's decision regarding these items will be final and conclusive.

Any area(s) of the attached specification that contain statements such as 'no exceptions' or similar statements with the same general meaning shall be strictly adhered to. The Purchaser has deemed these items to be extremely important to achieve the final delivered product that the Purchaser wishes to purchase. Any exceptions to these areas will result in immediate rejection of that bidder's proposal regardless of bid price.

All exceptions, no matter how minor, or seemingly un-important, must be detailed fully with supporting documentation submitted with proposal. Failure to submit exceptions and supporting documentation will cause immediate rejection of bidder's proposal.

All bidders shall be aware that the attached specifications shall be made part of the Purchase Contract between the Purchaser and the contractor/bidder. The successful bidder will be required to meet all construction, fabrication, and material requirements as called for in these specifications. Any deviations from these specifications must be specifically listed, explained, and submitted with the bid proposal. Failure to submit the detailed exceptions will indicate to the Purchaser that an exception is not taken and the bidder will provide the construction, fabrication, and material requirements as desired by the Purchaser and detailed in the attached specifications. Submission of list of exceptions does not indicate acceptance/approval of exceptions by the Purchaser.

In the unlikely event that the contractor/bidder fails to construct the apparatus as requested in the attached specifications, the Purchaser retains the right to reject the entire apparatus and invoice the contractor/bidder for any costs or losses that the Purchaser may have incurred due to the contractor/bidder failing to meet specifications described in the purchase contract.	_____	_____

"BRAND NAME" CLAUSE

It is the intent of the Purchaser to purchase components that have a proven record of Fire Department use and satisfaction. All bidders should be aware that where brand names are listed in these specifications, comparable products from different manufacturers may be acceptable. The bidder shall simply provide the Department with a listing of brands that they intend to provide in lieu of the originally requested brand.

The Fire Department will evaluate the proposed brand name to determine if the brand is equal to or superior to the originally requested brand.	_____	_____

CONTRACTOR'S SPECIFICATIONS

All contractors or bidders shall submit a detailed specification as to how the apparatus being proposed will be constructed. The attached specifications, copies, or re-typed versions of these specifications shall not be submitted as contractors specifications, (this will not pertain to the contractor whose specifications these are based on). Any manufacturer doing so will be rejected immediately on the following grounds:

"Contractor/bidder did not provide sufficient supporting data describing the contractors/bidders manufacturing and fabrication processes implemented in the construction of the proposed apparatus versus what was requested in the Purchaser's original specifications."

The contractors/bidders specification shall describe, in detail, all manufacturing and fabrication processes as well as material used in the construction of the apparatus. Other items that must be clearly listed in the contractors/bidders specifications shall include all compartment and door dimensions, cubic feet of usable storage space

	Compliance YES	NO
per compartment, and all other items specifically called for in the attached specifications.	_____	_____

CORPORATE OWNERSHIP OF MANUFACTURER

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected. _____ _____

CORPORATE CONTACT INFORMATION

The Purchaser shall be provided with the following information to allow them to contact the President/CEO of the manufacturing company (not dealer) when deemed necessary:

1. Name of Company President
2. Office address
3. Office telephone number
4. Email address
5. Home address
6. Home telephone number
7. Cellular telephone number (business and personal, if applicable)

If the manufacturing company is a subsidiary of, division of, or owned by a different Company, the above information shall also be provided on the 'Parent' Company.

There will be no exception to this requirement. _____ _____

FIRST CLASS FIRE APPARATUS

If the manufacturer or bidder for the apparatus manufacturer represents two or more different lines of apparatus and/or operates two or more manufacturing plants, it should be clearly stated in the bid proposal.

In addition to this requirement, the bidder shall give a detailed explanation of why the particular line, brand, model or manufacturing facility will be used.

Manufacturer's or bidder's with multiple lines (two or more) or multiple manufacturing facilities (two or more) shall be required to submit bid proposals on only the first class brand/model or from the first quality manufacturing facility.

It is the intention of the Purchaser to purchase a top of the line quality fire apparatus. Any bidder that submits a bid on a "lower end" line, brand, model or from a "lower end" manufacturing facility will be immediately rejected.

The Purchaser is not interested in purchasing a manufacturer's or bidders "lower end" apparatus. Because of this, any bids submitted that do not comply with the above requirements will be immediately rejected. _____ _____

BANKRUPTCY STATEMENT

If the manufacturer of the apparatus, or if any owner, shareholder, or immediate relative of an owner or shareholder that has previously been involved in or held ownership in any company that has filed bankruptcy or any other type of reorganization plan, it must be clearly stated in the bid proposal. The statement must include details and dates of all occurrences. _____ _____

AWARD OF CONTRACT

The bid shall be awarded to the contractor or bidder that most closely meets all requirements set forth in the attached specifications. All contractors or bidders shall be aware that exceptions taken will not affect the award of bid provided that all exceptions are determined to be 'equal to' or 'superior to' the attached specifications. The Purchaser shall be solely responsible to determine this.

The purchase contract shall list the manufacturer of the apparatus as the Contractor and shall not include a sales representative or company as the Contractor unless these are one in the same. The purchase contract shall be presented to the Purchaser within 15 days of notification of bid award to the contractor/bidder.

	Compliance YES	NO
All contractors or bidders shall be aware that it is not the intention of the Purchaser to award the contract to the apparent low bidder. The Purchaser reserves the right to reject any or all bids and to accept the bid that the Purchaser feels is in the best interest of the Purchaser both now and in the future.	_____	_____

24/7 FACTORY SUPPORT

The manufacturer (not dealer) of the apparatus shall maintain a 24 hours per day, 7 days per week, 365 days per year factory support contact system to allow the Purchaser to contact the manufacturer in case of emergency. The system shall be activated by a telephone call to the manufacturing facility.	_____	_____

DELIVERY OF COMPLETED APPARATUS

When the apparatus is completed at the manufacturer's facility, a factory trained delivery technician shall deliver the apparatus to the Purchaser. The technician shall familiarize all individuals designated by the Purchaser on the operation and maintenance of the apparatus at this time. The technician shall remain at the Purchaser's location for a sufficient period of time to allow all individuals to gain a thorough knowledge of the operation of the apparatus.	_____	_____

FIRE STATION PRE-CONSTRUCTION CONFERENCE

The factory authorized distributor shall perform a pre-construction conference at the fire station to finalize all construction details.	_____	_____

WEB BASED CUSTOMER INTERACTION

The manufacturer shall provide web based access to construction photographs while the apparatus is being built. This access shall be provided through a secured area on the manufacturer's website and shall be accessible only by individuals authorized by the Department.

The following photos, at minimum, shall be available:
1. Chassis (front, left, right and rear).
2. Body prior to pre-paint (front, left, right and rear).
3. Body painted (front, left, right and rear).
5. Pump module, if applicable, (front, left, right and rear).
6. Final assembly (front, right, left and rear).

This web based interaction will enhance the communication process during the construction of the apparatus and will provide the Department remote access to the apparatus during construction process.

Due to the complexity of apparatus, this interaction will provide the Department a method of checking specification compliance. Because this interaction is considered critical to the construction process, no exception will be allowed to this requirement.	_____	_____

BLUEPRINT DRAWINGS

All bidders must submit with their proposal blueprint drawings of the exact apparatus being proposed. Drawings of similar units **will not** be acceptable. Blueprints must be submitted on minimum "D" size, 24" x 36" paper to allow for an accurate, easy to read, visual interpretation of the apparatus proposed by the manufacturer.

The drawings shall show the complete left side view of the apparatus, including the chassis as well as right side and rear body views showing all compartment dimensions, door opening sizes, compartment depths, and total square foot of usable compartment pace per compartment.

Any proposal received without these required drawings will be immediately rejected.	_____	_____

BID GUARANTY

All bids shall be accompanied by a Surety or Bid Bond in the amount of 10 percent of the bid amount made payable to the Purchaser and provided by the manufacturer of the apparatus. (Bonds submitted by dealers or agents will not be acceptable.) Failure to submit this bond, or submission by a dealer or agent in lieu of the manufacturer, will result in immediate rejection of said bid proposal.	_____	_____

Compliance
YES NO

BID VALIDITY PERIOD

In order to allow sufficient time to allow the Purchaser, or designated officials thereof, sufficient time to evaluate all bid proposals received, all bids must remain valid for a period not less than 60 calendar days from date of bid opening. All prices must remain firm for the entire period.

During the evaluation period, bidders may be asked to further clarify their proposals or answer questions that may arise during the evaluation of bid. It is the responsibility of the bidder to make clarifications, **in writing**, on the fire apparatus manufacturer's letterhead and signed by the President and/or General Manager of the manufacturing company. These written clarifications must be received within 72 hours of when they were requested by the Purchaser. Failure to respond within the allowed time period will deem the bid proposal unresponsive and it will be rejected.

All information that is requested in the original bid packet must be included in the sealed bid proposal. Bidders will not be allowed to submit required documents after opening of bids. Failure to include required information with bid will result in rejection of bid proposal. _____ _____

CERTIFICATION OF NFPA 1901 COMPLIANCE

As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA 1901-2009 are met. The manufacturer shall be responsible for providing or performing only the items requested by the Purchaser in the documents provided to the manufacturer by the Purchaser.

Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA 1901-2009 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party, any item required by NFPA 1901-2009 (per the previous paragraph), the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901-2009.

This "Statement of Exceptions" shall include:

1. A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance.

2. A description of the particular aspect of the apparatus that is not compliant.

3. A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.

4. An identification of the entity who will be responsible for making the necessary post-delivery changes or modifications to the apparatus to achieve full compliance with the applicable standard.

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof.

The Purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA 1901-2009. _____ _____

NFPA REQUIRED EQUIPMENT

The end user of this apparatus shall provide all other equipment and accessories that are required by NFPA 1901 but not specifically listed in these specifications. _____ _____

MAXIMUM TOP SPEED

The maximum top speed of this apparatus shall be determined using the following NFPA 1901 Chapter 4 criteria:

- Apparatus with 1250 gallon combined water tank capacity shall not exceed 60 MPH.
- Apparatus with GVWR of over 50,000 lbs. shall not exceed 60 MPH.
- Apparatus weighing over 26,000 lbs. shall not exceed 68 MPH. _____ _____

Vehicle Configuration

CONVENTIONAL CHASSIS
2015 MODEL YEAR SPECIFIED
SET BACK AXLE - TRUCK

General Service

FIRE SERVICE
EMERGENCY VEHICLES BUSINESS SEGMENT
MEDIUM TRUCK 2 YEAR WARRANTY
EXPECTED FRONT AXLE LOAD: 14000 lbs
EXPECTED REAR DRIVE AXLE LOAD: 26000 lbs
EXPECTED GROSS VEHICLE WEIGHT CAPACITY : 40000 lbs

Engine

CUM ISL 350 HP @ 2000 RPM, 2200 GOV RPM, 1000 LB/FT @ 1400 RPM

Engine Equipment

2013 ONBOARD DIAGNOSTICS/2010 EPA/CARB/GHG14
NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER
DR 12V 275 AMP 40-SI QUADRAMOUNT PAD ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE
(3) ALLIANCE MODEL 1031, GROUP 31, 12 VOLT MAINTENANCE FREE 2280 CCA THREADED STUD BATTERIES WITH POSITIVE JUMP START POST
BATTERY BOX FRAME MOUNTED
WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN
POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DRIVER SEAT
CUMMINS 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE
CUMMINS EXHAUST BRAKE INTEGRAL WITH VARIABLE GEOMETRY TURBO
RH HORIZONTAL AFTERTREATMENT SYSTEM
HORTON DRIVEMASTER ON/OFF FAN DRIVE
AUTOMATIC FAN CONTROL WITHOUT DASH SWITCH, NON ENGINE MOUNTED
1100 SQUARE INCH ALUMINUM RADIATOR WITH SENDURE HEAT EXCHANGER
ANTIFREEZE TO -34F, ETHYLENE GLYCOL PRE-CHARGED SCA HEAVY DUTY COOLANT
GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT
CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES
ELECTRIC GRID AIR INTAKE WARMER
DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH

Transmission

ALLISON 3000 EVS 5 SPD AUTOMATIC TRANSMISSION WITH PTO PROVISION

Transmission Equipment

TRANSMISSION PROGNOSTICS - ENABLED
MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN
PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED
WATER TO OIL TRANSMISSION COOLER
TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK

SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)

Fire Pump

CUSTOM DRIVELINE SPACER FOR FIRE PUMP

Front Axle and Equipment

DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE
MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING
HALDEX AUTOMATIC FRONT SLACK ADJUSTERS
TRW TAS-85 POWER STEERING

Front Suspension

14,600# TAPERLEAF FRONT SUSPENSION
MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION
FRONT SHOCK ABSORBERS

Rear Axle and Equipment

26,000 LB FIRE/EMERGENCY SINGLE REAR AXLE
IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING
17T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES
MERITOR 16.5X7 "P" CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES
FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING
MERITOR AUTOMATIC REAR SLACK ADJUSTERS

Rear Suspension

26,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD FOR FIRE/EMERGENCY SERVICE
SPRING SUSPENSION - 1.50" AXLE SPACER
CUSTOM AXLE CLAMPING GROUP

Brake System

AIR BRAKE PACKAGE
WABCO 4S/4M ABS WITH TRACTION CONTROL
NFPA COMPLIANT ENHANCED STABILITY CONTROLS
BW AD-9 BRAKE LINE AIR DRYER WITH HEATER
CUSTOM STEEL AIR BRAKE RESERVOIRS
BW DV-2 AUTO DRAIN VALVE WITHOUT HEATER - WET TANK

Electrical Connections

UPGRADED CHASSIS MULTIPLEXING UNIT
UPGRADED BULKHEAD MULTIPLEXING UNIT

Wheelbase & Frame

(261 INCH) WHEELBASE / (148 INCH) CA
11/32X3-1/2X10-15/16 INCH STEEL FRAME 120KSI
(47 INCH) REAR FRAME OVERHANG

Chassis Equipment

THREE-PIECE 14 INCH CHROME STEEL BUMPER WITH COLLAPSIBLE ENDS AND LH WING CUTOUT FOR SPEAKER
FRONT TOW HOOKS - FRAME MOUNTED
GRADE 8 THREADED HEX HEADED FRAME FASTENERS

Fuel Tanks

50 GALLON ALUMINUM FUEL TANK
6 GALLON DIESEL EXHAUST FLUID TANK

ALLIANCE FUEL FILTER/WATER SEPARATOR
FUEL COOLER

Tires

GOODYEAR G751 MSA 12R22.5 16 PLY RADIAL FRONT TIRES
GOODYEAR G182 RSD 12R22.5 16 PLY RADIAL REAR TIRES

Hubs

CONMET PRE-SET BEARING IRON FRONT HUBS
CONMET PRE-SET BEARING IRON REAR HUBS

Wheels

22.5X8.25 10-HUB PILOT 5.72 INSET POLISHED ALUMINUM DISC FRONT WHEELS
22.5X8.25 10-HUB PILOT POLISHED ALUMINUM DISC REAR OUTER WHEELS

Cab Exterior

154 INCH BBC HIGH-ROOF ALUMINUM CONVENTIONAL CREW CAB
AIR CAB MOUNTS
NFPA COMPLIANT EXTERIOR GRAB HANDLES
HOOD MOUNTED CHROMED PLASTIC GRILLE
CHROMED HOOD MOUNTED AIR INTAKE GRILLE
TUNNEL/FIREWALL LINER
DUAL ELECTRIC HORNS
DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS
DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME
INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZEL
LED AERODYNAMIC MARKER LIGHTS
DAYTIME RUNNING LIGHTS
DUAL 102” WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE
LH AND RH 8" BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS
63X14 INCH TINTED REAR WINDOW
RH AND LH ELECTRIC POWERED WINDOWS
TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS
TINTED WINDSHIELD
2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED

Cab Interior

OPAL GRAY VINYL INTERIOR
MOLDED PLASTIC DOOR PANELS WITH ALUMINUM KICKPLATE LOWER DOORS
FORWARD ROOF MOUNTED CONSOLE WITH UPPER STORAGE COMPARTMENTS WITHOUT NETTING
IN DASH STORAGE BIN
AM/FM DASH MTD RADIO WITH AUXILIARY INPUTS
(2) CUP HOLDERS LH AND RH DASH
HEATER, DEFROSTER AND AIR CONDITIONER
MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH
PREMIUM CAB INSULATION
SOLID-STATE CIRCUIT PROTECTION AND FUSES

12V NEGATIVE GROUND ELECTRICAL SYSTEM
DOME LIGHT WITH 3-WAY SWITCH ACTIVATED BY LH AND RH DOORS
CAB DOOR LATCHES WITH MANUAL DOOR LOCKS
(1) 12 VOLT POWER SUPPLY IN DASH
SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT NFPA COMPLIANT
SEATS INC 911 UNIVERSAL SERIES SCBA NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE NFPA COMPLIANT
SEATS INC 911 HIGH BACK NON SUSPENSION LH, RH AND CENTER REAR PASSENGER SEATS WITH UNDER SEAT STORAGE NFPA COMPLIANT SEAT SENSORS
LH AND RH INTEGRAL DOOR PANEL ARMRESTS
GRAY VINYL SEAT COVERS WITH GRAY CORDURA CLOTH BOLSTERS AND HEADRESTS
3 POINT HIGH VISIBILITY ORANGE RETRACTOR DRIVER, RH FRONT AND LH, CENTER AND RH REAR PASSENGER SEAT BELTS WITH NFPA COMPLIANT VDR & SEAT BELT SENSOR
ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN
4-SPOKE 18 INCH STEERING WHEEL
DRIVER AND PASSENGER INTERIOR SUN VISORS

Instruments & Controls

BLACK GAUGE BEZELS
LOW AIR PRESSURE LIGHT AND BUZZER
2 INCH PRIMARY AND SECONDARY AIR PRESSURE GAUGES
ENGINE COMPARTMENT MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS, WITH WARNING LIGHT IN DASH
ELECTRONIC CRUISE CONTROL WITH SWITCHES IN LH SWITCH PANEL
IGNITION SWITCH WITH NON REMOVABLE KEY
ODOMETER/TRIP/HOUR/DIAGNOSTIC/VOLTAGE DISPLAY: 1X7 CHARACTER, 26 WARNING LAMPS, DATA LINKED, ICU3 FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING
2 INCH ELECTRIC FUEL GAUGE
ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE
2 INCH TRANSMISSION OIL TEMPERATURE GAUGE
ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY
ELECTRIC ENGINE OIL PRESSURE GAUGE
ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE
ELECTRONIC 3000 RPM TACHOMETER
DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY
SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY
MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH
ONE VALVE PARK BRAKE SYSTEM WITH DASH VALVE
SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD IN HANDLE

INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING STOP LAMPS

Compliance YES NO

Paint Design

SINGLE COLOR CUSTOM PAINT
BASE/CLEAR
BLACK, HIGH SOLIDS POLYURETHANE
CHASSIS PAINT

_____ _____

T O T A L V E H I C L E S U M M A R Y

Weight Summary

	Weight Front	Weight Rear	Total Weight
Factory Weight+	8207 LBS	4757 LBS	12964 LBS

(+) Weights shown are estimates only.

Compliance YES NO

_____ _____

HALE 1,250-GPM SINGLE STAGE PUMP

The fire pump shall be manufactured by Hale and shall comply with all applicable requirements of the latest edition of NFPA 1901 "Standard for Automotive Fire Apparatus" published by the National Fire Protection Association. _____ _____

PUMP WARRANTY

The pump shall be covered by the Hale Pro-Tech 5 year pump warranty against workmanship and materials. Both parts and labor shall be covered for the first 2 years and years 3-5 shall have parts only coverage. _____ _____

PUMP PERFORMANCE - 1,250 U.S. GPM.

The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,250 United States gallons per minute. The pump shall deliver the percentage of rated discharge pressures as indicated below:

- 100 percent of rated capacity at 150 pounds net pressure.
- 70 percent of rated capacity at 200 pounds net pressure.
- 50 percent of rated capacity at 250 pounds net pressure.
- 100 percent of rated capacity at 165 pounds net pressure. _____ _____

PUMP CONSTRUCTION

The pump shall be driven by a drive line from the truck transmission. The pump shall be free from objectionable pulsation and vibration under all normal operating conditions. The engine shall provide sufficient horsepower and revolutions per minute to allow the pump to meet or exceed its rated performance.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 500-PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by NFPA 1901.

The pump body and related parts shall be of fine grain alloy cast iron with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable.

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

The pump impeller shall be of hard, fine grain bronze with a mixed flow design; accurately machined, hand ground, and individually balanced. The vanes of the impeller intake eyes shall be hand ground and polished to a sharp edge, and shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

The pump shaft shall be fabricated of heat-treated, electric furnace, corrosion resistant stainless steel, and shall be super finished under the shaft seal. The

	Compliance YES	NO
pump shaft must be sealed with double lip oil seal to keep road dirt and water out of gearbox.	_____	_____

GEARBOX

The gearbox shall be completely manufactured and tested at the pump manufacturer's factory.

The pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine in both road and pump operating conditions. The gearbox shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and shall be a minimum of 2.75 inches in diameter, on both the input and the output drives shafts. The gearbox shall withstand the full torque of the engine in both road and pump operating conditions.

All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and the gear teeth shall be crown shaven, and hardened for smooth, quiet running, and a higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

The pump gear ratio shall be selected by the apparatus manufacturer to give the maximum performance with the engine and transmission selected.	_____	_____

MECHANICAL SEAL

The pump shaft shall be equipped with a single mechanical type seal on the suction (inboard) side of the pump. The mechanical seal shall be a minimum of two-inches in diameter and shall be spring loaded, maintenance free and self-adjusting. The mechanical seal shall constructed of a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal.	_____	_____

SACRIFICIAL PUMP ANODES

To aid in protecting the pump from internal corrosion, three sacrificial anodes shall be provided and located one in the lower section of each side inlet and one on the discharge side of the pump.

FRC PUMP BOSS PRESSURE GOVERNOR SYSTEM

Fire Research Pump Boss pressure governor and monitoring display kit shall be installed. The kit shall include a control module, pressure sensor, and cables.

The following continuous displays shall be provided:

CHECK ENGINE and STOP ENGINE warning LEDs
Engine RPM; shown with four daylight bright LED digits more than 1/2" high
Engine OIL PRESSURE; shown on an LED bar graph display in 10 psi increments
Engine TEMPERTURE; shown on an LED bar graph display in 10 degree increments
BATTERY VOLTAGE; shown on an LED bar graph display in 0.5 volt increments
PSI / RPM setting; shown on a dot matrix message display
PSI and RPM mode LEDs
THROTTLE READY LED.

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Engine RPM
Pump Overheat
High Transmission Temperature
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Battery Voltage
Low Engine Oil Pressure
High Engine Coolant Temperature

	Compliance YES	NO
The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.		
A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.		
The pressure governor and monitoring display shall be programmed to interface with a specific engine.	_____	_____

HALE/CLASS 1 INTAKE RELIEF VALVE

A Hale/Class 1 intake relief/dump valve shall be provided on the intake side of the pump to relieve excess incoming pressure. The system shall be designed to self-restore to a non-relieving position when excessive pressure is no longer present. The pressure adjustment range shall be from 75 psi to 250 psi. The relief system shall be adjustable with a common type box end wrench.		
The surplus water shall discharge to the atmosphere at a location away from the pump operator's position.	_____	_____

125 PSI INTAKE RELIEF VALVE PRE-SET PRESSURE

The intake relief valve shall be pre-set to 125 psi.	_____	_____

PUMP SHIFT MECHANISM - AIR/ELECTRIC

The pump shall be shifted from road to pump by means of a cab mounted air over electric pump shift switch. The switch shall have a built in positive locking mechanism to prevent accidental movement of the switch. The locking mechanism shall require the operator to manually lift up on the switch lever to disengage the lock.		
The switch shall have three positions: Position 1 = road position Position 2 = neutral position Position 3 = pump position		
A green indicator light shall be provided in the driving compartment and shall be energized when the pump shift has been completed. This light shall be labeled "PUMP ENGAGED".		
When the apparatus is equipped with an automatic transmission, a green indicator light shall be provided in the driver's compartment. It shall be energized when both the pump shift has been completed and the chassis transmission is in pump gear. This light shall be labeled "OK TO PUMP".	_____	_____

MANUAL PUMP SHIFT OVERRIDE - REMOTE CABLE ACTUATION

A manual pump shift override shall be provided on the apparatus. The shift shall be remote cable actuated. The remote cable shall have a "T" handle control which shall be positioned just inside the pump compartment on the driver's side. The control shall be easily accessed through the side panel hinged access door. The control shall be clearly labeled "MANUAL PUMP SHIFT".	_____	_____

HALE MODEL ESP-PVG OIL LESS PRIMING SYSTEM

A Hale model ESP oil less priming system shall be provided with PVG panel mounted control valve. The priming pump shall be an electrically driven, positive displacement vane type conforming to requirements outlined in NFPA 1901. One priming control shall both open the priming valve and start the priming motor.		
The primer shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry and using 20 feet of appropriately sized hard suction hose with strainer. The system shall develop a vacuum of 22 inches		

	Compliance YES	NO
at an altitude of up to 2,000 feet above sea level. The vacuum test shall be performed with a capped 20-foot length of hard suction hose, developing a vacuum of at least 20 inches with a drop not exceeding 10 inches in 5 minutes.		
The environmentally friendly priming system shall not require any priming lubricant.	_____	_____
PRIMER FUSE		
The primer shall be protected with a 250 amp fused link that is designed to protect the apparatus 12 volt electrical system if the primer motor malfunctions.	_____	_____
MANIFOLD DRAIN VALVE		
The pump shall have a manifold type drain valve assembly consisting of a stainless steel plunger in a bronze body with multiple ports. The control for the valve shall be on the left side along the bottom of the panel and above the side running board. The valve shall be a rotary type with a large easy to grip handle. The valve shall be labeled “PUMP DRAIN”.	_____	_____
ICI "LEVER LIFT" BLEEDER/DRAIN VALVES		
ICI 3/4" quarter turn ball type bleeder/drain valve shall be provided for each discharge and auxiliary intake. A hose shall be connected to the valve that will direct water below the apparatus and away from the immediate pump operator's location.		
The control handle shall be "lever lift" style for easy actuation. The handle for the control shall have a recessed area for the color coded identification label.	_____	_____
6" LEFT (DRIVER) SIDE MASTER INTAKE		
A 6" master intake shall be provided on the left (driver) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "DRIVER SIDE MASTER INTAKE". The label shall be color coded burgundy.	_____	_____
LEFT SIDE MASTER INTAKE CAP		
A 6" female NST long handle chrome cap shall be provided on the left side master intake.	_____	_____
6" RIGHT (PASSENGER) SIDE MASTER INTAKE		
A 6" master intake shall be provided on the right (passenger) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "PASSENGER SIDE MASTER INTAKE". The label shall be color coded burgundy.	_____	_____
RIGHT SIDE MASTER INTAKE CAP		
A 6" female NST long handle chrome cap shall be provided on the right side master intake.	_____	_____
INTAKE PIPING - STAINLESS STEEL		
The intake manifold piping shall be 304 stainless steel.	_____	_____
3/8" PUMP COOLING/BYPASS LINE		
A 3/8" pump cooling/bypass line shall be provided from the pump discharge manifold directly into the tank.		
This discharge shall implement a Class 1 model 38BV all brass ball type 1/4 turn valve with chrome plated handle control located on the pump panel.		
The valve control handle shall indicate the open/closed position of the valve. The handle shall have a recessed area for mounting of the identification label which shall clearly state "PUMP COOLER".	_____	_____

Compliance
YES NO

TANK REFILL/RECIRCULATION DISCHARGE

A discharge shall be provided from the pump discharge manifold to allow pump cooling when necessary as well as to refill the booster tank.

The water tank fill gauge shall be directly in line with this discharge control.

The valve and piping shall be 2".

The refill/recirculation discharge shall be manually controlled on the pump panel. _____ _____

STAINLESS STEEL PIPING

All piping for discharges shall be stainless steel using stainless steel fittings. Victaulic couplings shall be used in all front, rear and side discharges, deck pipes and crosslays for quick, simple removal of any pipe section or valve for maintenance.

High pressure flexible helix wire reinforced piping with a minimum burst pressure of 1200 psi may be used in some areas to minimize friction losses. All flexible piping couplings shall be high tensile strength stainless steel.

All piping shall be properly supported and braced to prevent movement of piping other than what is allowed by the Victaulic couplings to compensate for apparatus flexing.

Any discharge manifolds provided on the apparatus must be fabricated of a minimum of schedule 10 304 marine grade piping. Use of any welded light gauge (less than Schedule 10) manifolding or plumbing will not be acceptable. _____ _____

STAINLESS STEEL PIPING WARRANTY

The stainless steel piping shall be warranted to be free from corrosion perforation for a period of 10 years following the delivery of the apparatus. _____ _____

VENTED LUG CAPS AND PLUGS

All intake and discharge plugs and caps and plugs shall be vented lug type designed to relieve trapped pressure and help reduce possible operator injuries. _____ _____

AKRON 8800 SERIES VALVES

All discharge and small diameter auxiliary intakes shall have heavy duty Akron 8800 brass self locking ball valves with stainless steel ball. This shall include the tank to pump and tank fill valve. _____ _____

LEFT SIDE REARWARD AUXILIARY INTAKE

An auxiliary intake shall be provided on the left side of the pump compartment in the rearward position.

The intake shall have a 2 1/2" chrome plated female NST swivel connection with screen and a male NST chrome plated intake plug and chain.

A 3/4" bleeder/drain valve shall be provided. _____ _____

RIGHT 2 1/2" DISCHARGE REAR OF INTAKE

One 2 1/2" discharge shall be provided on the right side of the apparatus to the rear of the master intake.

The discharge shall be equipped with a chrome discharge elbow that is cast as an integral part of the valve.

A 2 1/2" chrome plated NST cap and chain shall be provided. _____ _____

RIGHT 3" DISCHARGE AHEAD OF INTAKE

One 3" discharge shall be provided on the right side of the apparatus ahead of the master intake.

The valve shall be manually controlled on the pump panel. The control shall have an integrated slow closing mechanism to comply with NFPA 1901.

	Compliance YES	NO
The discharge shall extend straight out of the apparatus with no type of elbow. A Kochek model SKE5T3R 3" FNST x 5" locking swivel Storz elbow adapter with a model ZS36S525 5" locking Storz x 2 1/2" MNST reducer cap with a model ZCP2552 cap and chain shall be provided.	_____	_____

LEFT 2 1/2" DISCHARGE AHEAD OF INTAKE

One 2 1/2" discharge shall be provided on the left side of the apparatus ahead of the master intake.

The valve shall be manually controlled on the pump panel.

The valve shall be equipped with a chrome discharge elbow that is cast as an integral part of the valve.

A 2 1/2" chrome plated NST cap and chain shall be provided.	_____	_____

LEFT REAR 2 1/2" DISCHARGE

One 2 1/2" discharge shall be provided on the left rear of the apparatus.

The valve shall be manually controlled on the pump panel.

A chrome discharge elbow shall be provided.

The discharge shall be used as a pre-connected line and shall not require any cap or chain.	_____	_____

1 3/4" MID MOUNT CROSSLAY PRECONNECTS

Two 1 3/4" pre-connected crosslays shall be provided and located in front of the top mounted pump panel, stacked one above the other.

Access for re-loading the fire hose shall be from the lower front area of the walkway area.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2" piping or high pressure hose incorporating a 2" valve with the control on the top mount pump operator's panel.	_____	_____

 # 1 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 1 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.	_____	_____

 # 2 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 2 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.

There shall be two (2) 2" swivel elbows with 1 1/2" Male NST hose thread connections provided on the 1 3/4" crosslay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.	_____	_____

1 3/4" CROSSLAY DRAIN VALVES - AUTOMATIC

3/4" automatic drain valves shall be provided for all 1 3/4" crosslays. The valves shall have an all brass body with heavy duty neoprene seal. The valves shall be normally open and shall close at 6 psi using an all brass check assembly with stainless steel spring.	_____	_____

CROSSLAY COMPARTMENT ENDS - BLACK WEBBING

The crosslay compartment shall be enclosed on each end using a heavy duty webbing to prevent hose from accidently unloading. The webbing shall be black.

A yellow nozzle strap shall be provided for each crosslay. The strap shall be designed to loop through the nozzle handle and secured to the apparatus to keep nozzle from coming out of the crosslay compartment without manually disconnecting the nozzle strap.	_____	_____

	Compliance YES	NO
3" MONITOR DISCHARGE		
A 3" monitor discharge shall be provided above the pump compartment. The discharge piping shall extend above the pump compartment a sufficient distance to allow use of the deck gun.	_____	_____
AKRON APOLLO HI-RISER PORTABLE/TRUCK MOUNT MONITOR		
One (1) Akron High-Riser monitor shall be provided and mounted on the monitor discharge. The monitor shall elevate 24" above the base.		
The monitor assembly shall have hand wheel elevation control for 90 degrees above to 15 degrees below horizontal with an elevation stop at 35 degrees above horizontal. The monitor shall rotate 360 degrees continuous in the 'truck mount' mode while flowing up to 1,250 gpm and 180 degrees in the portable mode while flowing up to 800 gpm. The horizontal travel shall have a locking mechanism and stops to prevent accidental over rotation in the portable mode.		
The monitor shall have a full 3" waterway with vanes in each elbow. A 3" direct connect base shall be provided for use on the monitor discharge pipe. A protected pressure gauge shall be installed on the monitor assembly.	_____	_____
AKRON 2499 STACKED TIPS		
A set of Akron model 2499 quad stacked tips shall be provided. The tip orifices shall be 1 3/8", 1 1/2", 1 3/4", and 2". The tips shall be lightweight Pyrolite.	_____	_____
AKRON 3488 DISCHARGE PIPE		
One (1) Akron model 3488 Pyrolite discharge pipe/stream straightener shall be provided for use on the monitor. The pipe shall have rigid female NST x male NST fittings.	_____	_____
AKRON APOLLO DUAL 2 1/2" BASE		
A dual, 2-1/2" inlet female NST portable base with folding legs shall be provided for monitor use off of the apparatus. Hardened steel ground spikes shall be provided at the ends of the folding legs. A safety chain shall also be provided to secure the monitor while using the portable base.	_____	_____
AKRON 1757 TURBOMASTER MASTER STREAM NOZZLE		
One (1) Akron Turbomaster model 1757 master stream nozzle shall be provided for the monitor.		
The nozzle shall be a combination fog and straight stream constant gallonage nozzle with four flow settings of 350, 500, 750, and 1000 gallons per minute. The nozzle shall have variable pattern selection from straight stream to wide fog with continuous detents for positive positioning.		
The nozzle shall be constructed of lightweight Pyrolite with spinning teeth, large rubber like pattern control ring and 2 1/2" female National Standard Thread swivel connection.	_____	_____
1 3/4" FRONT BUMPER DISCHARGE(S)		
There shall be one (1) 1 3/4" discharge(s) provided on the front of the apparatus.	_____	_____
FRONT BUMPER EXTENSION		
The front bumper shall be extended forward 21" to 24" from the chassis grille depending upon space necessary.	_____	_____
BUMPER EXTENSION APRON		
An aluminum treadbrite apron/gravel shield shall be provided in the area between the extended bumper and the chassis cab.	_____	_____
BUMPER EXTENSION HOSE WELL WITH COVER		
A hose well shall be provided in the bumper extension. The hose well shall be designed to fit between the front bumper frame rail extensions shall have a "raised lip" to help prevent water entry into the compartment. The hose well shall be maximum		

	Compliance YES	NO
size using all useable space between the frame rails. An aluminum treadbrite hinged cover shall be provided to enclose the hose well.		
The floor of the hose well shall be covered with Turtle Tile.	_____	_____
HOSE WELL COVER NOTCH		
A hose well cover shall be notched to allow for the hose to be pre-connected to the discharge located on the front bumper extension.	_____	_____
FRONT HOSE WELL CAPACITY		
The front bumper hose well shall have the capacity of 100 feet of 1 ¾" fire hose.	_____	_____
FRONT DISCHARGE HOSE CONNECTION - CHROME SWIVEL		
The hose connection for the discharge shall be located immediately adjacent to the hose well. A **chrome plated or polished stainless steel** swivel shall be provided. The lid for the hose well shall be notched to allow for the hose to be pre-connected.	_____	_____
FRONT BUMPER DISCHARGE HOSE CONNECTION - DRIVER'S SIDE		
The hose connection for the front bumper discharge shall be on the driver's side.	_____	_____
HANNAY ELECTRIC REWIND BOOSTER REEL		
A Hannay 12 volt electric rewind booster reel shall be provided and mounted on the apparatus.		
The reel shall be mounted in the upper portion of rear compartment to allow use of transverse compartments.	_____	_____
REEL FINISH - SILVER-GRAY		
The reel(s) shall be finish painted silver-gray on the entire surface of the reel, discs and mounting assembly.		
A stainless steel roller assembly shall be provided for guiding the booster hose.		
A rewind button shall be provided adjacent to the reel. The button shall be able to be activated while standing on the ground and shall be a heavy duty momentary push type button.		
A manual rewind crank shall be provided in case of power failure. The removable crank handle shall be mounted inside of an apparatus body compartment.	_____	_____
200' 1" BOOSTER HOSE 800 PSI		
A single 200 foot length of 1" booster hose shall be provided for the reel. The hose shall have a 800 psi rating and shall be coupled with chrome plated bar-way couplings.	_____	_____
FIRE DEPARTMENT PROVIDED BOOSTER REEL NOZZLE		
The Fire Department shall provide the nozzle for the booster reel.	_____	_____
TOP MOUNTED SELF CONTAINED MODULAR PUMP COMPARTMENT		
A self-contained modular pump compartment, designed for the integral mounting of a midship pump with top mounted pump operator's panel, shall be provided.		
The modular design of the pump compartment shall allow the compartment to be fully independent of the apparatus body or cab. A minimum .75-inch gap shall be provided between the pump compartment and the apparatus body creating a flexible joint between the pump compartment assembly and the apparatus body. The modular design of the pump compartment shall allow the entire pump system, including the pump itself, to be removed from the apparatus in a one-piece, modular section, while leaving the body intact and without having to cut any sheet metal or welds.	_____	_____
STAINLESS STEEL PUMP COMPARTMENT CONSTRUCTION		
The entire pump compartment shall be constructed using only 304 marine grade stainless steel fabricated sheeting with a #4 annealed and polished finish on all		

	Compliance YES	NO
exterior surfaces. The pump compartment shall not require any finish painting. Due to the extreme twisting and flexing that all fire apparatus are subjected to, aluminum shall not be used in any portion of the pump compartment structural support. The use of any type of enclosed tubing that requires the use of self-tapping or any other type of machine screw shall not be acceptable.	_____	_____

TOP MOUNT PUMP OPERATOR'S WALKWAY

A 22" wide (front to rear) pump operator's walkway shall be provided between the pump compartment and the chassis cab. A 1" minimum space shall be provided between the walkway edges, the pump compartment and rear wall of the chassis. _____ _____

TOP MOUNT WALKWAY LIGHTING – L.E.D.

Two teardrop style L.E.D. lights shall be provided to illuminate the top mount walkway area. _____ _____

LIGHTED WALKWAY COMPARTMENT - OFFICER'S SIDE

A compartment shall be incorporated into the walkway assembly on the officer's side of the apparatus. The compartment shall have a minimum depth of 30", and shall be a minimum of 22" wide x 18" high in the rear section, tapering to no less than 6" high in the forward section. The entire step and running board assembly shall be horizontally hinged to allow complete access to the compartment. A pneumatic spring hold-open device shall be provided to hold the integrated step/door assembly open. The compartment shall be provided with a Weldon #2025 enclosed light fixture that will be controlled by the pump panel light switch. _____ _____

LIGHTED WALKWAY COMPARTMENT - DRIVER'S SIDE

A compartment shall be incorporated into the walkway assembly on the driver's side of the apparatus. The compartment shall have a minimum depth of 30", and shall be a minimum of 22" wide x 18" high in the rear section, tapering to no less than 6" high in the forward section. The entire step and running board assembly shall be horizontally hinged to allow complete access to the compartment. A pneumatic spring hold-open device shall be provided to hold the integrated step/door assembly open. The compartment shall be provided with a Weldon #2025 enclosed light fixture that will be controlled by the pump panel light switch. _____ _____

TOP MOUNT PUMP OPERATOR'S WALKWAY MATERIAL

The entire pump operator's walkway assembly shall be constructed of NFPA compliant slip resistant aluminum treadbrite on all stepping surfaces. _____ _____

PUMP COMPARTMENT RUNNING BOARDS

The pump compartment side running boards shall be constructed of NFPA compliant slip resistant aluminum treadbrite. _____ _____

PUMP COMPARTMENT SIDE ACCESS DOORS - TOP MOUNT

A brushed stainless steel hinged access door shall be provided on each side of the pump compartment. The doors shall have pneumatic hold open devices and push button type flush latches. The doors shall be a minimum of 30" wide x 20" high. _____ _____

TOP MOUNT BRUSHED STAINLESS STEEL PUMP PANEL

A rear facing top mounted pump panel shall be provided to allow simple, efficient operation of all pump functions necessary during normal fire ground operations.

A dual level inclined pump panel shall be provided for convenient user friendly layout of the panel to simplify the operation of the apparatus. Both levels of the panel shall be sloped to provide an angled view of the panel so that the operator may read all identification labels easily.

All controls for the pump shall be identified using permanently engraved identification labels properly secured to the panel. All discharge and intake identification labels shall be color coded to NFPA 1901 recommendations with labels at the control, intake/discharge location and drain port location.

The front incline panel shall be constructed of brushed stainless steel and shall begin at the lower edge of the front panel just behind the control levers and continue back to the area which the second incline level begins.

	Compliance YES	NO
The rear incline panel shall be constructed of brushed stainless steel and shall begin just above the pressure gauge mounting area and continue up to the top of the pump compartment. The panel shall have a full width stainless steel hinge at the bottom to allow the panel to hinge forward for access to the back of the panel. A latch shall be provided on each end to secure the panel in the closed position. A full pump panel width brushed stainless steel light shield shall be provided at the top of the gauge panel.	_____	_____

SIDE INTAKE/DISCHARGE PANELS - TOP MOUNT

The side panels of the pump compartment shall be constructed of brushed stainless steel. The side panels shall be easily removable and held into place using stainless steel or chrome plated flush mounted latches.		
Panels that are permanently attached to the pump compartment or require removal of mechanical fasteners are not acceptable.	_____	_____

TOP MOUNT PUMP PANEL LIGHTS - L.E.D.

The top mount pump panel shall be illuminated using an I.L.I. track type L.E.D. light assembly.		
The light shall be constructed of an unbreakable type clear poly flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.	_____	_____

SIDE DISCHARGE/INTAKE PANEL LIGHTS - L.E.D.

The right and left side discharge and intake panels shall be illuminated using an I.L.I. track type L.E.D. light assembly on each side.		
The lights shall be constructed of an unbreakable type clear poly flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.	_____	_____

INNOVATIVE CONTROLS TOP MOUNT CONTROL HANDLES

All top mount valve control handles shall be Innovative Controls 'locking' lever type with "T" handles. The "T" handles shall be chrome plated zinc and shall have a recessed area for the color coded identification label.	_____	_____

STAINLESS STEEL VALVE CONTROL LINKAGES

All manual valve controls shall have control rod linkages constructed of 1/2" stainless steel rod or pipe and shall implement heavy ball swivel joints and clevises for smooth valve operation.		
Plain, painted or coated control rods are not acceptable. **(No Exception).**	_____	_____

NO-SHOK MASTER PUMP DISCHARGE PRESSURE GAUGE

A No-Shok 4" diameter master pressure gauge shall be provided to indicate the main pump discharge pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.	_____	_____

NO-SHOK MASTER PUMP INTAKE PRESSURE GAUGE

A No-Shok 4" diameter master pressure gauge shall be provided to indicate the pump intake pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.	_____	_____

STAINLESS STEEL MASTER GAUGE BEZELS

The master intake and discharge gauges shall have bright finish stainless steel bezels.	_____	_____

MASTER INTAKE/DISCHARGE PRESSURE GAUGE - WHITE FACE

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings.	_____	_____

Compliance
YES NO

MASTER INTAKE/DISCHARGE GAUGE LABELING

The master intake gauge shall be clearly labeled "PUMP INTAKE" and shall be located to the left of the master discharge pressure gauge. (Burgundy label).

The master discharge gauge shall be clearly labeled "PUMP DISCHARGE" and shall be located to the right of the intake pressure gauge. (Black with silver lettering). _____ _____

MASTER INTAKE/DISCHARGE GAUGE WARRANTY

The master intake/discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty.

The gauges shall also be warranted for 4 years for defects in materials and workmanship, including fluid leakage. The warranty will not cover labor costs and/or transportation costs. _____ _____

PRESSURE/VACUUM TEST PLUGS

Underwriter's test plug adapters shall be provided for connection of pump test gauges. _____ _____

INNOVATIVE CONTROLS SL PLUS TANK GAUGE - PUMP PANEL

An Innovative Controls model SL Plus tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view ultra-bright L.E.D. display showing the level of the booster tank. _____ _____

INNOVATIVE CONTROLS SL PLUS TANK GAUGE - REAR

An Innovative Controls model SL Plus tank gauge shall be provided on the rear of the apparatus. The gauge shall feature a 180 degree highly visible wide view ultra-bright L.E.D. display showing the level of the booster tank. _____ _____

NO-SHOK DISCHARGE PRESSURE GAUGES

Unless otherwise specified, each 1 1/2" or larger discharge shall have a No-Shok pressure gauge. The gauge shall be glycerin filled (-40F to +150F), read from 0 - 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.

The individual discharge pressure gauges shall have a 2 3/4" diameter.

The discharge pressure gauges shall have chrome finish color coded trim bezels. The bezels shall have recessed surfaces to allow for the color code and identification labels.

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings.

The pressure gauge shall be directly in line with the discharge control handle for the discharge that they provide pressure readout for. **For ease of operation, this requirement must be strictly adhered to. There shall be no exception to this requirement.**

The gauges shall be clearly labeled with permanent color coded labels.

The discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty. The gauge shall also be warranted for 4 years for defects in materials and workmanship including fluid leakage. Warranty will not cover labor costs and/or transportation costs. _____ _____

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment.

Where required, the verbiage label bezel assemblies shall include a chrome plated panel mount bezel with durable easy to read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. The UV resistant polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA

	Compliance YES	NO
standards.	_____	_____

BOOSTER TANK- UNITED PLASTIC FABRICATING, INC.

The tank shall have a LIFETIME warranty provided by United Plastic Fabricating, Inc.

The tank exterior shell shall be constructed of minimum 1/2" thick PT3 polypropylene sheet stock. This material shall be non-corrosive stress relieved thermoplastic which is U.V. stabilized for maximum protection. The booster tank shall be of a specific configuration and is designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The tank construction shall include Poly Pro Seal technology. A sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise.

The transverse swash partitions shall be manufactured of 3/8" PT3 polypropylene material. The longitudinal swash partitions shall be constructed of 3/8" PT3 polypropylene and extend through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and are welded to each other as well as to the walls of the tank. All partition spacing shall be compliant with NFPA 1091 recommendations.

The top of the booster tank shall be fitted with removable lifting eyes.

The tank cradle assembly shall be designed to provide support to the tank. The assembly shall be approved by the manufacturer of the tank. _____ _____

BOOSTER TANK CAPACITY 1,000 GALLONS

The poly booster tank shall have a capacity of 1,000 U.S. gallons.

BOOSTER TANK FILL TOWER - LEFT SIDE FRONT

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum of **10" x 10"** outer dimension. The tower shall be located in the left front corner of the hose bed. The tower shall have a 1/4" thick removable polypropylene screen and polypropylene hinged type cover. _____ _____

4" TANK OVERFLOW

A 4" diameter tank vent/overflow shall be provided and integrated into the tank. The piping shall be a minimum of schedule 40 polypropylene designed to run through the tank and discharge behind the rear wheels. _____ _____

1" TANK SUMP DRAIN

A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel piping with a 1" valve. The control for the valve shall be remote to the driver's side of the apparatus just under and behind the side rub rail. The drain control handle shall be labeled "TANK DRAIN". _____ _____

3" TANK SUMP CLEAN OUT PLUG

A 3" tank sump clean out plug drain shall be provided in the bottom of the tank sump. _____ _____

2 1/2" REAR TANK FILL(S)

One (1) 2 1/2" rear tank fills shall be provided on the rear of the apparatus. The fill connection shall be located on the right side of the rear face. The valve shall be located on the inside of the rear compartment with the valve control and connection located on the exterior. The fill valve shall be connected to the tank with 2-1/2" stainless steel threaded pipe, with the hose connection on the exterior of the apparatus supplied with a 2 1/2" FNST swivel connection, 30-degree elbow with a chrome plated plug and chain. _____ _____

REAR FILL LOCATION - RIGHT (PASSENGER) SIDE

The rear fill shall be located on the right (passenger) side.

An Akron 8825 series valve shall be utilized on the tank fill(s). _____ _____

Compliance
YES NO

3" TANK TO PUMP

A 3" tank to pump line and valve shall be provided between the tank and the pump.

The tank to pump valve shall be manually controlled on the pump panel. _____ _____

TANK TO PUMP CHECK VALVE

A check valve assembly shall be provided on the pump. The valve shall prevent unintentional back filling of the tank through the tank to pump line. Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose. _____ _____

TANK CRADLE SUB-STRUCTURE - HOT DIPPED GALVANIZED

The tank cradle substructure shall be constructed of high strength structural steel.

The tank cradle substructure shall be designed to provide support to the booster tank. The design of the cradle shall be approved by the tank manufacturer.

The entire tank cradle substructure shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that it may be easily removed from the chassis for repair, replacement or mounting to a new chassis.

After complete assembly of the tank cradle substructure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub-frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable. _____ _____

REAR SUPPORT STRUCTURE - HOT DIPPED GALVANIZED

The apparatus body substructure shall be constructed of high strength structural steel.

The substructure shall be designed to provide integral support of the apparatus body, rear step, and the tank mounting cradle system. The entire sub-frame shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that the apparatus body may be easily removed from the chassis for repair, replacement or mounting to a new chassis.

No holes shall be drilled into the top or bottom flange of the chassis frame rails. The substructure shall be designed to allow for a 22"- 24" side running board/rear step height when the apparatus is on level ground. All fasteners used to secure the substructure to the chassis frame rails shall be hardened steel with locking type nuts.

After complete assembly of the tank cradle substructure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable. _____ _____

20 YEAR TANK CRADLE STRUCTURAL WARRANTY

The tank cradle shall have a 20 year structural warranty.
NO EXCEPTION. _____ _____

20 YEAR TANK CRADLE CORROSION WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer.
NO EXCEPTION. _____ _____

20 YEAR REAR STRUCTURAL SUPPORT WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion

	Compliance YES	NO
perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. **NO EXCEPTION**.	_____	_____
20 YEAR REAR STRUCTURAL SUPPORT CORROSION WARRANTY The rear structural support shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. **NO EXCEPTION.**	_____	_____
***HYPER-FLEX* BODY MOUNTING** The body module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex'"* vibration and shock isolators using a forward mounting system. Flexible neoprene pads, or U-springs especially developed for the expected weight and torsional flexing of the apparatus body, shall be incorporated into the system to eliminate chassis frame rail flex from transmitting harmful loads and twisting onto the body.	_____	_____
100" BODY WIDTH The apparatus body shall be 100" wide from side to side measuring from the rub rail mounting surface.	_____	_____
APPARATUS BODY MATERIAL The entire apparatus body shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The interior of the apparatus body shall not require any finish painting. The compartment interiors must be a #4 finish. Mill finish or DA sanded finish will not be acceptable.	_____	_____
APPARATUS BODY CONSTRUCTION The entire apparatus body shall be formed by sheering and bending the sheet metal. Metal tubular structures or extrusions shall not be used in the construction of the apparatus body. All edges of the sheared metal shall be sanded to remove any sharp shearing edges prior to bending the metal. After sheering and bending, the body shall be assembled on a jig table that is designed to hold all parts securely in place to insure an accurately built apparatus body.	_____	_____
APPARATUS BODY ASSEMBLY METHOD The entire apparatus body shall be assembled using only bolted type construction. All apparatus body parts shall be able to be unbolted without the need to cut welds, etc. No exceptions to this requirement as all apparatus manufacturers have the capability to manufacture apparatus bodies in this manner.	_____	_____
COMPARTMENT FLOORS All compartment floors shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface. A drain port shall be provided in each rear corner of the compartment to allow any water that may collect on the floor to drain out. The drainports shall be designed to prevent road spray from entering the compartment. The front edge shall consist of a minimum of two bends to provide additional strength in the compartment floor and shall then form the lower door jamb. All compartment floors shall be sweep out design. This shall include the lower side compartments, any compartments above the wheel well, any transverse compartments, and the rear face compartment(s). Any exception to this requirement will cause immediate rejection of bid.	_____	_____
COMPARTMENT WEIGHT RATING Each compartment shall be designed to carry 1,000 lbs. of equipment distributed throughout the compartment.	_____	_____
INTERIOR COMPARTMENT SURFACES All visible interior compartment surfaces shall be 304 marine grade stainless steel with a # 4 annealed and polished finish. Surfaces that are painted or coated in any manner, raw material or any surface with any type sanded finish are not acceptable.	_____	_____

	Compliance YES	NO
FRONT COMPARTMENT CORNERS		
The apparatus body front compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be one piece construction from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.		
The # 4 finish corner shall wrap around the side of the apparatus body and form the front compartment door jamb providing front corner protection.	_____	_____
REAR COMPARTMENT CORNERS - BRUSHED		
The apparatus body rear compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be one piece construction from top to bottom and from the		
inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.		
The # 4 finish corner shall wrap around the side of the apparatus body and form the rear compartment door jamb providing front corner protection.	_____	_____
COMPARTMENT TOPS/CEILINGS		
The apparatus body compartment tops shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface.	_____	_____
COMPARTMENT TOP OVERLAY		
The compartment top shall be overlaid with .125" NFPA aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus body nor shall the bottom side of the treadbrite be visible when looking into the compartment.	_____	_____
PAINTED FENDER WELLS		
The left and right side rear fender wells shall be constructed of ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi. The fender wells shall be radius cut and shall have a full circular inner liner to prevent rust pockets and for ease of cleaning. A 1" gap shall be provided on the bottom of each side of the circular liner to allow drainage of water and for easy cleanout. Sufficient clearance shall be provided for tire chains. Before the booster tank is installed, the fender wells shall be thoroughly cleaned and all seams sealed to prevent corrosion in the fender well area.		
The outer surface of the fender well shall be finished painted. This surface shall not be overlaid with aluminum treadbrite or overlaid with a painted panel that is bolted on after the painting of the apparatus body.	_____	_____
PAINTED FENDER WELLS		
The fender wells shall be finish painted the primary exterior color of the apparatus. To prevent potential corrosion points, aluminum treadbrite or bolted on overlapping panels shall not be implemented in the construction of the apparatus body.	_____	_____
UPPER DOOR POSTS - PAINTED		
The upper door post to the front and rear of the compartment door above the rear wheels shall be constructed of ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi.		
The outer surface of these door posts shall be finished painted.	_____	_____
REMOVABLE INNER FENDER LINER		
The fender wells shall be radius cut and shall have a circular inner liner to prevent rust pockets and for ease of cleaning. The inner liner shall be constructed of high impact polypropylene material and shall be fully removable for chassis suspension access.	_____	_____

	Compliance YES	NO
REMOVABLE INNER FENDER LINER - NO EXCEPTION		
To prevent the buildup of potential corrosive materials in the fender well area, there shall be no exception to inner fender liner.	_____	_____
STAINLESS STEEL FENDERETTE		
The fender wells shall be trimmed with a polished stainless steel fenderette. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement. A black rubber fender welting shall be provided between the fenderette and the inner liner surface. The fenderettes shall protrude from the apparatus body a maximum of 1".	_____	_____
REPLACEABLE FENDERETTE		
The stainless steel fenderette shall be secured to the apparatus body with stainless steel fasteners and shall be easily removable for replacement.		
Fenderettes that are welded to the apparatus body are not acceptable.	_____	_____
OUTER BODY SIDES		
The outer left and right side body panels above the compartment tops shall be constructed of 304 2B marine grade stainless steel with a # 4 brushed finish and shall not require any finish paint.	_____	_____
COMPARTMENT VENTILATION		
Each compartment shall have a removable metal ventilation plate to allow for air movement in the compartment. A cleanable filter material shall be provided behind the plate.		
Plastic cover plates will not be acceptable.	_____	_____
COMPARTMENT DOORS		
For compartments requiring flush hinged doors:		
All side compartment doors shall be double paneled and designed to fit flush with the side of the apparatus body. Lap style or beveled style doors shall not be acceptable.		
The exterior panel of the door shall be pan formed, shall be a minimum of 1 5/8" thick, and shall be constructed of minimum 1/8" smooth aluminum 5052alloy. The outer pan shall be double flanged, in and down, to provide full perimeter support for the interior panel.		
All compartments that have double doors shall have the interior panel offset on the interior of the second door to allow the first door to shut tightly against the offset portion. Any compartments with double doors shall not require a center door jamb thereby allowing full, unobstructed access to the compartment.		
All compartment doors must be fitted on the apparatus body prior to painting, removed and fully disassembled for painting. All hinges, latches, handles and inner liners must be removed for the paint process to insure proper paint coverage.	_____	_____
INNER DOOR PANEL - ALUMINUM TREADBRITE		
The interior panel of the door shall be constructed of aluminum treadbrite and shall be removable for access to the interior of the door and to allow mounting equipment to interior door panel. Interior door panels that are permanently welded or glued into place shall not be acceptable.	_____	_____
COMPARTMENT DOOR HINGES		
All compartment doors shall have full length polished stainless steel hinge. The hinge shall have a minimum pin diameter of 1/4". The hinge shall be fastened to the door and to the apparatus body with stainless steel fasteners.		
Fasteners used to secure the hinge shall not be visible on the exterior of the apparatus body. A dielectric isolation barrier shall be provided between the hinge and the door as well as between the hinge and the apparatus body. The hinge must be removed from both the apparatus body and compartment door during the paint process.	_____	_____

Compliance
YES NO

COMPARTMENT DOOR LATCHES

All compartment door latches shall be a single point center latch with double catch. The latch shall be a 'slam' type latch. Use of pin type latches shall not be acceptable. The entire latch mechanism must be located inside the double pan door to prevent any possible fouling or damage to the latch in the event equipment stored in the compartment shifts. The latches shall be activated by a non-directional stainless steel D ring handles. The handle shall be bent slightly to allow for easy grasp of the handle. _____ _____

DOUBLE DOOR SECOND DOOR LATCH - CABLE OPERATED

A latch shall be provided on the interior of the second door on all double door compartments. A pull cable shall be provided on the interior of the second door of all high compartment doors to activate the latch with a gloved hand. _____ _____

VERTICALLY HINGED COMPARTMENT DOOR RETENTION DEVICE

Hansen 5EZ enclosed stainless steel door retention devices shall be provided on all vertically hinged compartment doors. The device shall be bolted to the door and to the apparatus with stainless steel fasteners. These fasteners shall not visible on the exterior of the apparatus body. The adjustable spring mechanism shall hold the door firm, but not rigid, in either the open or closed position. The use of chain, cable or devices that are required to be manually unlatched to close shall not be acceptable. _____ _____

HORIZONTALLY HINGED COMPARTMENT DOOR RETENTION DEVICE

All horizontally hinged doors shall be provided with pneumatic lift devices of adequate rating to hold the door in the open position. The device shall be bolted to the apparatus body and the interior door liner and shall be provided with 5 position adjustment brackets to allow the open height of the door to be easily adjusted. _____ _____

COMPARTMENT DOOR SOUND DEADENING

After the compartment door has been painted, polystyrene insulation panels shall be placed on the interior of the door between the outer skin and the removable inner liner. These panels shall provide for a more solid sounding door when closing the door. Use of sprayed on material for sound deadening will not be permitted. _____ _____

COMPARTMENT DOOR WEATHER STRIPPING

All compartment doors shall be weather stripped the entire perimeter of the compartment door opening. All weather stripping shall be heavy-duty automotive hollow core type. Sponge type materials shall not be acceptable. All weather stripping must be applied to a metal backing. Clip-on type weather stripping shall not be used on the perimeter of the compartment. All double door compartments shall have a metal crimp type weather strip applied to the offset interior panel. _____ _____

HINGED COMPARTMENT DOOR PAINTING PROCEDURE

All hinged compartment doors that are to be finish painted must be fitted on the apparatus body prior to painting, removed and fully disassembled for painting. All hinges, latches, handles and inner liners must be removed for the paint process to insure proper paint coverage. _____ _____

ROM ROLL UP COMPARTMENT DOORS

For all compartments requiring roll up doors, Robinson (ROM) roll up doors shall be installed.

The doors shall be constructed of aluminum extrusion slats and shall be fitted with a flexible, watertight seal between the slats at pivoting joints. Each slat shall be individually removable for replacement if damaged. The end caps and rollers shall be manufactured of type-6 nylon. The doors shall have a pre-tension operator in a sealed alloy drum that shall be positioned in the upper portion of the compartment providing maximum clearance and head room in the upper portion of the compartment.

Each door shall have a full door width lift bar latching handle which shall be spring loaded with two (2) surface mounted latch points, mounted one (1) on each end. The door shall be reinforced and the latch point with a "ledge" surface above the lift bar designed to provide a "push" surface when closing.

A drip rail shall be provided above all doors. _____ _____

	Compliance YES	NO

STAINLESS STEEL COATED FASTENERS

All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through a dissimilar metal panel shall be Magna-Gard, or equal, coated to help prevent metal reaction and corrosion.

As the Magna-Gard, or equal, coating is a "baked on" type coating providing for excellent adhesion to the fastener, spray on type coatings may be used in conjunction with the Magna-Gard, or equal, but not in place of it.

Because dissimilar metal corrosion is a common occurrence on all apparatus and the Magna-Gard (or similar "baked on" coatings) fasteners are commercially available to all manufacturers and is not a proprietary product, there shall be no exception to this requirement. _____ _____

DRIVER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS

A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 67" high x 35.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.

The compartment shall have a single vertically hinged door. _____ _____

DRIVER'S SIDE ABOVE WHEEL COMPARTMENT

A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be 37" high x 63.75" wide x 14" usable depth.

The compartment shall have a horizontally hinged, raise up door. _____ _____

DRIVER'S SIDE COMPARTMENT BEHIND REAR WHEELS

A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth.

The compartment shall have double vertically hinged doors. _____ _____

PASSENGER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS

A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 67" high x 35.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.

The compartment shall have a single vertically hinged door. _____ _____

PASSENGER'S SIDE ABOVE WHEEL COMPARTMENT

A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be 37" high x 63.75" wide x 14" usable depth.

The compartment shall have a horizontally hinged, raise up door. _____ _____

PASSENGER'S SIDE COMPARTMENT BEHIND REAR WHEELS

A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth.

The compartment shall have double vertically hinged doors. _____ _____

REAR FACE COMPARTMENT

A rear compartment shall be provided on the apparatus just ahead of the rear step. The compartment shall be a minimum of 30" useable depth. The compartment shall have maximum height with selected apparatus options. _____ _____

REAR FACE COMPARTMENT DOOR – ROLL UP

The rear compartment shall have a roll up door. The door shall have a satin finish. _____ _____

	Compliance YES	NO
DRIVER'S SIDE REAR COMPARTMENT - TRANSVERSE		
The driver's side compartment behind the rear wheels shall be open into the rear facing compartment (transverse).	_____	_____
PASSENGER'S SIDE REAR COMPARTMENT - TRANSVERSE		
The passenger's side compartment behind the rear wheels shall open into the rear facing compartment (transverse).	_____	_____
18" REAR TAILBOARD STEP		
An 18" depth rear tailboard step shall be provided on the apparatus. The step shall be spaced from the rear face of the apparatus body a minimum of 3/4" for easy wash out.	_____	_____
REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE		
The rear step shall be constructed of NFPA compliant bright finish aluminum treadbrite.	_____	_____
RUB RAILS - BRIGHT ANODIZED ALUMINUM		
Extruded aluminum rub rails shall be provided on the apparatus body sides. The rub rails shall have a bright finish with anodized coating to protect the finish. The rub rails shall provide an integrated mounting location for the L.E.D. side marker lights as well as the reflectors. The rub rails shall be spaced from the apparatus body a minimum of 1/4" with poly spacers.		
The rub rails must be bolted on to the apparatus body to allow easy replacement if damaged. Rub rails that are permanently fastened to the apparatus body by welding or any other permanent method will not be acceptable. **NO EXCEPTION WILL BE ALLOWED TO THIS REQUIREMENT.**	_____	_____
RUB RAIL ENDS		
The rub rail ends shall be 'capped' with a high impact resistant black EPDM contoured block.	_____	_____
HOSE BED FLOORING		
The floor of the hose bed shall be constructed of fiber reinforced Dura-Dek, or equal, material.		
The top portion of each "T" cross section shall measure 1 5/8" wide x 3/16" thick with beaded ends. The vertical portion shall be 3/16" thick tapering out at the bottom to a thickness of 1/2" and have an overall height of 1". The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.		
The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. The gray colored coating shall be baked on and include a slip resistant material.	_____	_____
68" WIDE HOSE BED		
The hose bed shall be 68" wide from side to side.	_____	_____
HOSE BED CAPACITY		
The hose bed shall have the capacity to carry the following hose load:		
1,000 feet of 5 inch hose with STORZ connection. 1,200 feet of 2.5 inch DJ hose.	_____	_____
HOSE BED DIVIDER(S)		
There shall be two (2) hose bed divider(s) to partition off hose. The divider(s) shall be constructed of 3/16" thick aluminum plate material. The lower edge of the divider(s) shall have a two inch 90 degree bend toward one side and a 2" x 2" x 3/16" aluminum angle welded to the other side.		
The divider(s) shall be adjustable by sliding in tracks which are recessed flush into the hose bed flooring, one on front and one on rear. The divider shall be held in place by two bolts on each end.		
The upper rear corner of the divider(s) shall have a minimum of a 3" radius cut.	_____	_____

	Compliance YES	NO

HOSE BED COVER WITH VELCRO FASTENERS

A heavy duty vinyl coated nylon hose bed cover shall be provided to protect the hose load from the weather. The cover shall extend from the front of the hose bed to the rear and then extend downward to cover the exposed rear of the bed.

The cover shall have a double reinforced area where the cover comes into contact with the upper rear corners of the hose bed dividers. The cover shall be secured to the apparatus using velcro on the sides and lift dots on front.

The rear of the cover shall be secured to the apparatus using positive mechanical latches. _____ _____

HOSE BED BULKHEAD

A bulkhead divider shall be provided in the front area of the hose bed separating the hose bed from the tank fill tower(s). The balance of this area that is not occupied by fill tower or other mounted equipment shall be used as a dunnage compartment. _____ _____

HOSE BED COVER - RED

The hose bed cover shall be red. _____ _____

LOW MOUNT ENCLOSED LADDER COMPARTMENT

A ladder storage compartment shall be provided on the right side of the apparatus with an access door on the rear. The compartment shall be located below the hose bed level and shall not be located above or through the booster tank. The compartment shall be located between the booster tank and the right side compartments.

For ease of removal and replacement with limited staffing, the compartment shall be designed to carry all portable ladders vertically on their beams. Ladder racks that carry the ladders horizontally shall not be acceptable.

The compartment shall be constructed of 5052 1/8" aluminum with a brushed finish. Individual slides fabricated of 5052 H32 alloy aluminum shall be provided in the compartment on both sides to allow individual storage for all ladders. The slides shall be provided with permanently attached Rodex poly slip blocks with tapered front and rear edges to allow easier loading/unloading of the ladders.

An aluminum tread plate vertically hinged door with a slam-type latch shall be provided on the compartment. The latch shall be activated by a large "D" ring control. The use of lift-and-turn or small snap type latches on this door shall not be acceptable.

All ladders shall be capable of being removed individually without disturbing the remaining ladders. _____ _____

PIKE POLE STORAGE

Storage for two straight handle pike poles shall be provided in the ladder storage compartment. _____ _____

LADDER COMPARTMENT LIGHT

An L.E.D. light shall be provided in the ladder storage compartment. The light shall be mounted just inside the ladder compartment access door and activated with an automatic door switch.

The light switch shall be incorporated into the door ajar warning system in the cab. _____ _____

ALCO-LITE 24,14,10 LADDER PACKAGE:

ALCO-LITE 24' 2 SECTION ALUMINUM LADDER

One (1) Alco-Lite model PEL-24, 24' NFPA compliant 2 section aluminum extension ladder shall be provided and mounted. _____ _____

ALCO-LITE 14' ALUMINUM ROOF LADDER

One (1) Alco-Lite model PRL-14, 14' NFPA compliant aluminum roof ladder with folding hooks shall be provided and mounted. _____ _____

	Compliance YES	NO
ALCO-LITE 10' ALUMINUM FOLDING ATTIC LADDER		
One (1) Alco-Lite model FL-10, 10' NFPA compliant aluminum folding attic ladder shall be provided and mounted.	_____	_____
HARD SUCTION MOUNTINGS		
Two (2) hard suction hose troughs shall be provided and mounted one (1) above the high side compartments on left side and one (1) above the high side compartments on the right side. The troughs shall be constructed of 1/8" 5052 smooth aluminum sheeting material with a brushed or anodized finish.	_____	_____
HARD SUCTION SECURING CLAMPS		
The hard suction troughs shall have stainless steel or chrome plated handles with springloaded latches on each end to hold the hard suction hoses in place.	_____	_____
6" x 10' HARD SUCTION HOSES (2)		
Two sections of 6" diameter x 10' length clear lightweight PVC hard suction hose shall be provided.	_____	_____
HARD SUCTION HOSE COUPLINGS - NST		
The hard suction shall be coupled long handle female NST x rocker lug male NST.	_____	_____
HARD SUCTION - KOCHEK		
The hard suction shall be Kochek brand.	_____	_____
6" LOW LEVEL STRAINER WITH JET		
A Kochek model LL60 low level strainer with jet shall be provided. The strainer shall have a 6" female NST swivel connection.	_____	_____
COMPARTMENT SHELF TRACKS - ALUMINUM		
Four (4) sets consisting of two heavy duty aluminum Uni Strut tracks shall be provided in specified compartments, one for each end of shelf.		
The tracks shall not be welded to the apparatus body.	_____	_____
SHALLOW DEPTH COMPARTMENT SHELVING		
There shall be four (4) shallow depth shelves provided. The shelves shall be constructed of 1/8" smooth aluminum with a 2" upward bend on the front and rear edges.	_____	_____
DRIVER'S SIDE FRONT OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area in front of the rear axle on the driver's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____
DRIVER'S SIDE REAR OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area behind the rear axle on the driver's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____
PASSENGER'S SIDE FRONT OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area in front of the rear axle on the passenger's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____

	Compliance YES	NO
PASSENGER'S SIDE REAR OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area behind the rear axle on the passenger's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____
WHEEL WELL STORAGE COMPARTMENT DOORS – BRUSHED FINISH STAINLESS		
Brushed finish stainless steel access doors shall be provided on each wheel well storage compartment in the wheel well.	_____	_____
WHEEL WELL SCBA CYLINDER COMPARTMENT RETENTION STRAPS		
One 1" wide loop of high visibility yellow webbing shall be installed in each wheel well spare cylinder compartment for each cylinder to be stored in the compartment. The loop(s) shall be designed to loop around the cylinder valve and help prevent the cylinder from sliding out of the compartment if the door is not latched or fails.	_____	_____
TURTLE TILE FLOOR MATS		
All lower level apparatus body compartment floors shall be provided with 3/4" thick Turtle Tile modular 12" x 12" square tiles with perforated top surface for ventilation and air circulation. The tiles shall be easily removable for cleaning the compartment. The tiles shall interlock into each other to form a "one piece" floor liner.		
Floors with permanent mounted or bolted in place accessories will not have floor mats.	_____	_____
TURTLE TILE - BLACK		
The Turtle Tile shall be black in color.	_____	_____
FOLDING ACCESS STEPS		
Cast Products model SP4401-1CH-BL-A folding access steps shall be provided in areas listed in these specifications. All access steps provided on the apparatus shall support a minimum static load of 500 lbs. and be mounted in accordance to recommended mounting procedures as outlined by NFPA 1901. The steps shall be attached to the apparatus using stainless steel bolts with locking type nuts.		
The steps shall each have an L.E.D. light above and below the step area. The lights shall be activated by the park brake.	_____	_____
RIGHT FRONT COMPARTMENT ACCESS STEPS		
Four NFPA compliant folding steps shall be provided on the right side front compartment face.	_____	_____
LEFT FRONT COMPARTMENT ACCESS STEPS		
Four NFPA compliant folding steps shall be provided on the left side front compartment face.	_____	_____
RIGHT REAR ACCESS STEPS		
Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the right side.	_____	_____
LEFT REAR ACCESS STEPS		
Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the left side.	_____	_____
NFPA KNURLED FINISH HANDRAILS		
All handrails shall be 1 1/4" diameter extruded aluminum "knurled finish" with chrome plated stanchions. Rubber gaskets shall be provided between the stanchions and any painted surfaces. The rails shall comply with NFPA 1901.	_____	_____

	Compliance YES	NO
LEFT REAR VERTICAL HAND RAILS		
One NFPA compliant handrail shall be provided on the left rear of the apparatus for boarding the rear step and using the left rear hose bed access steps.	_____	_____
RIGHT REAR VERTICAL HAND RAILS		
One NFPA compliant handrail shall be provided on the right rear of the apparatus for boarding the rear step and using the right rear hose bed access steps.	_____	_____
LEFT FRONT GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the left front of the apparatus towards the front of the hose bed.	_____	_____
RIGHT FRONT GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the right front of the apparatus towards the front of the hose bed.	_____	_____
RIGHT REAR GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the right rear of the apparatus towards the rear of the hose bed.	_____	_____
LEFT REAR GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the left rear of the apparatus towards the rear of the hose bed.	_____	_____
48" INTERMEDIATE REAR HORIZONTAL HAND RAIL		
A 48" intermediate horizontal handrail shall be provided on the rear of the apparatus.	_____	_____
WALKWAY GRAB RAILS		
1 1/4" diameter extruded aluminum "knurled finish" handrails with chrome plated stanchions shall be provided on each side of the walkway entry.	_____	_____
NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM		
The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:		
NFPA MINIMUM ELECTRICAL LOAD DEFINITION		
The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode: 1. Propulsion engine and transmission. 2. The clearance and marker lights. 3. Communication equipment. 5 amp default. 4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting. 5. Minimum warning lights required for "blocking right of way" mode. 6. The current to simultaneously operate and fire pump and all specified electrical devices. 7. Anything defined by the Purchaser, in the advertised specifications, to be critical to the mission of the apparatus.	_____	_____
RESERVE CAPACITY TEST		
The first electrical test to be performed will be the **Reserve Capacity Test**. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, the items 1-7 shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.	_____	_____

Compliance
YES NO

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed shall be **Alternator Performance Test at Full Load**. All electrical loads shall be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage shall not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test. _____ _____

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees. _____ _____

12-VOLT WIRING SYSTEM

All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device shall not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every three inches along the entire length of all apparatus body wires (as required by NFPA 1901). All wiring shall be routed through heavy-duty PVC split loom, securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets

All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used.

All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type.

A removable bulkhead shall that extends from the floor to the ceiling of both side rear compartments shall be provided to protect rear wiring. _____ _____

MULTIPLEXED ELECTRICAL SYSTEM

The apparatus body electrical system shall incorporate a Multiplexed Electrical System. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of (24) output channels and (24) input channels. All inputs and outputs will be configured into a scale able electrical harness utilizing Duetsche connectors. The nodes must be waterproof and not require special mounting requirements.

The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable.

Placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs. The multiplex system shall be field-re-programmable and re-configurable by any authorized dealer or service center. This complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, door open notification system, interlock modules, separate volt meter and ammeter.

The Base System Shall Include:

Total Load Management
Load Shedding Capabilities
Load Sequencing Capabilities
“On-Board” Diagnostics Readout
Very Reliable, Solid-State Hardware
Error Reporting
Continuous system monitoring and reporting
Emergency warning lamp flasher
Door Ajar System
Field Configurable
Expandability Capabilities
Advanced PC Diagnostics

	Compliance YES	NO
As-built wiring harness drawings and a master circuit list of electrical circuits that the apparatus builder installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions. Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus builder shall not be accepted**.	_____	_____
V-MUX VFD DISPLAY PANEL		
An interface display shall be provided on the cab control console to report and display "Real Time" data.	_____	_____
DIGITAL 'DOOR OPEN' INDICATOR		
The VFD display shall indicate which individual door or doors are open using alpha-numeric symbols (letters and numbers). For example, if the driver front compartment door is open, the display shall read "DRIVER FRONT COMPARTMENT DOOR".		
Any system that does not indicate individual open doors and/or provides 'door open' indication using a single visual or audible alarm to represent all apparatus doors will not be acceptable.	_____	_____
AUTOMATIC HIGH IDLE FUNCTION		
An automatic high idle system shall be installed and will automatically activate whenever the system voltage drops below determined voltage. The high idle will remain on until adequate voltage is achieved.	_____	_____
MASTER BATTERY DISCONNECT		
A Cole Hersee model 2484-16 master battery disconnect switch shall be provided, mounted within easy reach of the driver when seated. The switch shall be wired between the starter solenoid and the remainder of the electrical loads on the apparatus. The batteries shall be connected directly to the starter solenoid. The alternator shall be wired directly to the batteries through the ammeter shunt if one is provided, and not through the master load disconnect switch.		
A green 'battery on' indicator light shall be provided in clear view of the driver. The light shall be mounted in a manner that will not impair the driver's vision or reflect onto the windshield.	_____	_____
LICENSE PLATE LIGHT/BRACKET		
A chrome plated L.E.D. license plate light shall be provided on the rear of the apparatus. The light shall function with the head light switch.		
A license plate mounting bracket shall be provided that spaces the license plate away from the apparatus body.	_____	_____
CLEARANCE LIGHTS/REFLECTORS		
All apparatus body clearance lights shall be L.E.D. style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage, and shall comply with FMVSS-108 regulations.	_____	_____
MID-MOUNTED SIDE TURN SIGNAL - L.E.D.		
A mid-mounted amber L.E.D. side turn signal shall be provided in the midsection area of the apparatus on both sides. The low profile signal shall be recessed into the side rub rail for protection.	_____	_____
PUMP COMPARTMENT LIGHTS (2)		
Two Weldon 2025 compartment lights shall be provided to illuminate the interior of the pump compartment. The lights shall function with the pump operator's gauge panel lights.	_____	_____
ENGINE COMPARTMENT LIGHT		
A Weldon model 2025 light shall be provided and mounted over the engine on the engine compartment wall. An on/off switch shall be provided on the light to activate it.	_____	_____

	Compliance YES	NO

DUAL ILI – L.E.D. COMPARTMENT LIGHTING

Each apparatus body compartment shall have two ILI track type L.E.D. lights vertically mounted in the compartment. The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

A compartment that is considered a 'full height' compartment shall each have two 48" long light sections and a 'low height' or above wheel compartment shall each have two 18" long sections. The lights shall function automatically and independently of other compartments when the compartment door is opened. **Compartment lighting systems that are controlled by a single, dash mounted switch are not acceptable**. _____ _____

COMPARTMENT LIGHT SWITCHES

Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The reed shall be potted in the contact housing with polyurethane and the housings shall be molded fire retardant ABS plastic. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

The compartment lights shall function automatically when the door is opened. A master compartment light switch shall not be acceptable. _____ _____

DOOR AJAR INDICATOR - L.E.D.

A 1" X 2" red L.E.D. flashing light shall be provided in the cab in clear view of the driver to warn of an open compartment or personnel door.

A label shall be provided adjacent to the light that states "Do Not Move Apparatus When Light Is On". _____ _____

PERIMETER GROUND LIGHTING Five (5)

There shall be five (5) Truck-Lite model 40 underbody perimeter lights furnished and installed. The lights shall be have an unbreakable polycarbonate lens and housing. The lights shall be sealed to help prevent moisture entry.

The ground lights shall be activated with the parking brake. _____ _____

L.E.D. APPARATUS BODY STEP LIGHTING

All apparatus body and pump steps and running boards shall be illuminated using chrome plated or stainless steel L.E.D. lights. The lights shall function automatically with the park brake. _____ _____

GROUND/STEP LIGHTING CUTOFF SWITCH

A ground/step light cut off switch shall be provided in the cab to allow the driver to disable the ground lights and other lights that activate when the parking brake is set. The switch shall automatically re-set itself when the parking brake is released. _____ _____

KUSSMAUL 20/20 BATTERY CHARGER

A Kussmaul Auto-Charge 20/20 fully automatic battery charger with 20 amp output shall be installed on the apparatus. Remote voltage sensing shall be provided to compensate the charger output for the voltage drop in the charging wires. A 0-25 ampere meter shall be provided on the charging unit to indicate charge rate. _____ _____

KUSSMAUL AUTO-PUMP AIR COMPRESSOR

A Kussmaul Auto-Pump 120 volt air compressor shall be provided on the apparatus. The compressor shall have a .76 cfm open flow with a maximum pressure of 100 psi. The pressure switch shall be pre-set at 70 psi cut in and 90 psi cut out. _____ _____

AUTO-EJECT SHORELINE CONNECTION

A Kussmaul 20 amp 120 volt Super Auto-Eject shall be provided. The unit shall automatically eject the connecting plug when the engine is cranked. _____ _____

Compliance
YES NO

AUTO-EJECT COVER - YELLOW

The Auto-Eject shall have a spring loaded cover yellow in color. _____ _____

AUTO-EJECT MATING PLUG

A NEMA 5-15P mating female cord end shall be shipped loose with the apparatus to allow the Fire Department to connect the cord end to a Fire Department provided charging cord. _____ _____

120 VOLT SHORELINE CONNECTION LOCATION

The 120 volt shoreline connection shall be located under the driver's door. _____ _____

WHELEN TRI-CLUSTER TAILLIGHTS - L.E.D. - INCANDESCENT

Whelen 60R00BRR 4" x 6" L.E.D. taillights and 60A00TAR 4" x 6" L.E.D. turn signals shall be provided. The backup lights shall be 4" x 6" clear incandescent. A polished trim housing shall be provided, one each side for mounting the tail lights, turn signal lights, and backup lights. _____ _____

BACKUP ALARM

A Code 3 (or equal) model DAP50 97db backup alarm shall be provided and shall automatically activate when the apparatus transmission is placed into reverse.

The backup alarm shall exceed all NFPA1901 and SAE J994 Type D requirements and testing. _____ _____

CENTER CONSOLE MOUNTED SWITCH PANEL

A center control console shall be provided between the driver's and officer's seats for all warning light switching, scene lighting switches, step light switches, pump shift, and battery switch.

A single master optical warning device switch shall be provided that will activate all minimum optical warning lighting through a **single** switch. Individual switches shall not be provided for any minimum optical warning lighting to insure total compliance to the warning lighting requirements defined in NFPA 1901. All lighting controlled by this switch shall not be subject to load management.

Any warning lights that are installed on the apparatus that are not required to meet the minimum optical warning lighting requirements shall be subjected to load management and shall have individual switches to activate/de-activate the warning light.

All switches shall be clearly labeled as to their function. _____ _____

ZONE A UPPER WARNING LIGHTING

A Whelen FN60QLED light bar shall be mounted on the top of the cab roof. The light bar shall be 60" in length and mounted with low profile stainless steel brackets.

The light bar shall have two front corner Linear-L.E.D.s, four front Linear-L.E.D.s (2 red, 2 white) and two red Linear-L.E.D.s.

The lenses on the Officer's side shall be red and the lenses on the Driver's side shall be red. _____ _____

ZONE C UPPER WARNING LIGHTING

Two Whelen model MCFLED2R L.E.D. beacons shall be provided one on each side on the rear. _____ _____

FRONT GRILLE WARNING LIGHTS

Two Whelen model M6R red L.E.D. lights shall be provided in the grille area on the apparatus. A chrome bezel shall be provided around the lights. _____ _____

INTERSECTION WARNING LIGHT - SIDES

One Whelen LINZ6 red L.E.D. light shall be provided on each side as low and far forward as possible on the apparatus. A chrome bezel shall be provided around the

	Compliance YES	NO
lights.	_____	_____
MID-SECTION WARNING LIGHTS - SIDES		
One Whelen LINZ6 red L.E.D. light shall be provided on each side in the mid-section of the apparatus. A chrome bezel shall be provided around the lights.	_____	_____
MID-SECTION WARNING LIGHTS - SIDES		
One Whelen LINZ6 red L.E.D. light shall be provided shall be provided on each side of the apparatus as low and as far rearward as possible on the apparatus. A chrome bezel shall be provided around the lights.	_____	_____
REAR FACING LOWER WARNING LIGHTS		
Two Whelen model M6R red L.E.D. lights shall be provided on the lower rear of the apparatus. A chrome bezel shall be provided around the lights.	_____	_____
WHELEN 295SLSA1 SIREN		
A Whelen 295SLSA1 siren shall be provided and mounted in the cab.	_____	_____
100 WATT SPEAKER		
A 100 watt speaker shall be provided and recessed into the front bumper. The model of speaker installed shall be designed to fit bumper type.	_____	_____
WHELEN 9E SCENELIGHTS		
Three Whelen model 9ECA0CR 9" x 7" 26 degree scene lights shall be provided and mounted one on each side and one on the rear. The lights shall have a chrome plate trim bezel.	_____	_____
12 VOLT SCENELIGHT ACTIVATION SWITCH (1)		
A single switch shall be located on the cab control console to activate the 12 volt scene light(s).	_____	_____
DUAL FUNCTION REAR SCENE LIGHT(S)		
The rear facing scene light(s) shall activate automatically when the apparatus transmission is placed into reverse.	_____	_____
L.E.D. HOSE BED LIGHT		
One L.E.D. light shall be provided and mounted in the front of the hose bed.		
The light shall be controlled by the pump panel light switch.	_____	_____
FRC SPECTRA L.E.D. TELESCOPING LIGHT - 12 VOLT		
Two (2) Fire Research model SPA540-Q20-TW top raising telescoping light(s) shall be mounted on the apparatus.		
The light head shall be 12 volt L.E.D. and shall draw a maximum of 18 amps creating 20,000 lumens. An on/off switch shall be provided under the light head.		
The telescoping pole shall be constructed of heavy wall anodized tube. The pole shall be secured in any raised position with a non-directional advanced twist lock locking device. The twist lock mechanism shall have a knurled positive grip.		
The light(s) shall include a three wire coiled cord extended from the pole top.		
The light(s) shall be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901.	_____	_____
FRC FOCUS BROW LIGHT - 12 VOLT L.E.D.		
One (1) Fire Research model FCA830-Q14 'UNIVERSAL' brow mounted light(s) shall be mounted on the apparatus.		
The light head shall be a 12 volt DC L.E.D. and shall draw 13 amps creating 14,000		

	Compliance YES	NO
lumens.	_____	_____

FLUID CAPACITY LABEL

A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance:

1. Engine Oil.
2. Engine Coolant.
3. Transmission Fluid.
4. Pump Transmission Fluid.
5. Pump Primer Fluid (if applicable).
6. Drive Axle Fluid.
7. Air Conditioning Refrigerant.
8. Air Conditioning Lubrication Oil.
9. Power Steering Fluid.
10. Cab Tilt Mechanism Fluid (if applicable).
11. Transfer Case Fluid.
12. Equipment Rack Fluid (if applicable).
13. Air Compressor System Lubricant.
14. Generator System Lubricant.
15. Front tire cold pressure.
16. Rear tire cold pressure.
17. Maximum tire speed ratings. _____ _____

OCCUPANCY LABEL

A permanent plate or label stating the maximum number of personnel allowed to ride on the apparatus at any one time shall be provided and installed in clear view of the driver. _____ _____

SEATED AND BELTED LABEL

Permanent plate or label shall be provided stating "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION". The label shall be visible from each seated position. _____ _____

DO NOT RIDE LABEL

A permanent plate or label shall be attached to the appropriate areas of the apparatus stating that riding on the rear step or any exterior position on the apparatus is prohibited. _____ _____

DO NOT WEAR HELMET LABEL

Permanent plate or label shall be provided stating "DO NOT WEAR HELMET WHILE SEATED". The label shall be visible from each seated position. _____ _____

MAXIMUM TIRE SPEED LABEL

A permanent plate or label shall be provided in the cab stating the maximum tire speed rating. _____ _____

LENGTH, HEIGHT, WEIGHT LABEL

A permanent plate or label shall be provided in the cab stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus.

The wording on this label shall indicate that the information on the plate/label was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the purchaser shall revise the height dimension on the plate. _____ _____

UNDERWRITERS LABORATORIES TESTING

The apparatus shall undergo an Underwriters Laboratories Certification Test to insure that the completed apparatus meets the requirements of NFPA #1901. The certificate shall be provided to the purchaser upon completion. Underwriters Laboratories shall also perform the required testing on the entire installed electrical system. Self-certification by the apparatus manufacturer will not be acceptable. _____ _____

Compliance
YES NO

MANUFACTURER'S RECORD CERTIFICATION

The contractor shall supply, at the time of delivery, at least one copy of the following documents:

1. The manufacturers record of apparatus construction details, including the following information:

    a. Owners name and address
    b. Apparatus manufacturer, model, and serial number
    c. Chassis make, model, and serial number
    d. GAWR of front and rear axles
    e. Front tire size and total rated capacity in pounds (kg)
    f. Rear tire size and total rated capacity in pounds (kg)
    g. Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)
    h. Engine make, model, serial number, rated horsepower and related speed, and governed speed
    i. Type of fuel and fuel tank capacity
    j. Electrical system voltage and alternator output in amps
    k. Battery make, model, and capacity in cold cranking amps (CCA)
    l. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
    m. Ratios of all driving axles
    n. Maximum governed road speed
    o. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
    p. Pump transmission make, model, serial number, and gear ratio
    q. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
    r. Water tank certified capacity in gallons or liters (if applicable).
    s. Aerial device type, rated in vertical height in feet, rated horizontal height in feet, and rated capacity in pounds.
    t. Paint manufacturer and paint number(s)
    u. Company name and signature of responsible company representative

2. Certification of slip resistance of all stepping, standing, and walking surfaces
3. If the apparatus has a fire pump, a copy of the pump manufacturers certification of suction capability.
4. If the apparatus has a pump, a copy of the apparatus manufacturers approval for stationary pumping applications.
5. If the apparatus has a pump, a copy of the engine manufacturers certified brake horsepower curve showing the maximum governed speed.
6. If the apparatus has a pump, a copy of the pump manufacturers certification of the hydrostatic test.
7. If the apparatus has a pump, a copy of the certification of inspection and test for the fire pump.
8. If the apparatus has an aerial device, the certification of inspection and test for the aerial device.
9. If the apparatus has an aerial device, all technical information required for inspections to comply with NFPA 1914.
10. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
11. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation
12. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
13. Written load analysis and results of the electrical system performance tests
14. When the apparatus is equipped with a water tank, the certification of water tank capacity. _____ _____

VEHICLE ROLLOVER STABILITY

The apparatus chassis shall be equipped with a stability control system and shall be certified to NFPA 1901 Rollover Stability requirements. _____ _____

VEHICLE DATA RECORDER (VDR)

The apparatus shall be equipped with an on-board Vehicle Data Recorder (VDR). The recorder shall be capable of recording the following data, in this order, at a minimum of once per second:

- Vehicle speed (MPH).

Compliance
YES NO

- Acceleration (from speedometer) (MPH/Sec)
- Deceleration (from speedometer) (MPH/Sec)
- Engine speed (RPM)
- Engine throttle position (% of throttle)
- ABS event (on/off)
- Seat occupied status (occupied yes/no by position)
- Seat belt status (buckled yes/no by position)
- Master optical warning device switch (on/off)
- Time (24 hour)
- Date (year/month/day)

The data shall be stored at the sampling rate in a 48 hour loop. The system shall have sufficient memory to record 100 engine hours of minute by minute summary data showing the data listed above. When the memory capacity is reached, the system shall erase the oldest data first.

All data stored in the VDR shall be password protected, upload able by the user to a computer and importable to into a data management software package that shall be provided with the apparatus. The software shall be both "Windows" and "Apple" compatible. The software shall produce the following formatted reports from the uploaded data:

- Daily log for the time the engine is running for a given date (minute by minute output of all values).
- Weekly summary (maximum values each hour for each day of the week).
- Monthly summary (maximum values each day for each day of the month). _____ _____

SEATBELT WARNING SYSTEM

The apparatus shall be equipped with a seatbelt warning system. The system shall consist of an audible warning device that can be heard at all seating positions that are designed to be occupied while the vehicle is in motion as well as a visual display visable to the driver showing each seating position. The warning system shall be activated anytime the parking brake is released or the automatic transmission is not in park.

The system shall display seating position lights as follows:

- Green (buckled/senses occupant)
- Red (buckled/no occupant)
- Red (unbuckled/senses occupant)
- Dark (unbuckled/no occupant) _____ _____

OCCUPIED SEATING POSITIONS - (5)

There shall be five seating positions designated for use while the vehicle is in motion. _____ _____

FIRE HELMET MOUNTINGS

Fire helmets will be stored in an exterior compartment and will not be carried in the apparatus cab. _____ _____

PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT

All interior compartment surfaces shall remain # 4 brushed stainless steel. There shall be no paint or any other type of coating on the interior compartment surfaces. Standard mill finish, DA finish or swirled finish shall not be accepted.

Any exterior surfaces that are to be painted shall be individually listed in the apparatus body portion of this specification.

All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moisture accumulation in flanged areas. _____ _____

PPG CERTIFIED 10 YEAR LIMITED PAINT WARRANTY

The apparatus body exterior finish paint shall have a 10 year limited warranty per the terms and conditions of the PPG written warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable. _____ _____

	Compliance YES	NO

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used. _____ _____

APPARATUS BODY UNDERCOATING

The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance. _____ _____

COMPARTMENT INTERIORS - BRUSHED STAINLESS FINISH

The compartment interiors shall be brushed stainless steel # 4 finish. The polished brushed finish shall be as provided by the manufacturer of the material.

Interiors with any type of paint, sprayed-on coatings, DA finish, or standard "mill finish" will not be acceptable. _____ _____

TIRE PRESSURE VISUAL INDICATOR

Real Wheels model RWTG1234 valve stem mounted visual indicators shall be provided on each tire. The L.E.D. indicators shall flash when the tire pressure drops 8 psi. _____ _____

REFLECTIVE LETTERING

A maximum of sixty (60) 4" maximum height reflective self-adhesive letters with black outline and drop shadow shall be applied to both sides of the chassis cab.

The exact type style, wording and placement of the lettering will be provided to the successful bidder at the pre-construction conference. _____ _____

6" NFPA REFLECTIVE STRIPE

A 6" reflective stripe shall be applied to the apparatus. The stripe shall be applied to a minimum of 50% of the length of the apparatus on each side, 50% across the rear and 25% across the front of the apparatus. The stripe shall comply with NFPA 1901 requirements. _____ _____

PRIMARY REFLECTIVE STRIPE COLOR - WHITE

The primary reflective stripe shall be 680-10 white. _____ _____

REFLECTIVE STRIPE - HORIZONTAL

The reflective stripe shall be applied in a straight horizontal line from front to rear. The height of the stripe on the chassis cab and the body shall be as close as possible. _____ _____

INNER CAB DOOR REFLECTIVE STRIPING - 4 DOOR

A minimum of 100 square inches of reflective material shall be provided on the inner door liner of each cab door. _____ _____

REAR CHEVRON STRIPING - DIAMOND GRADE

A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating 983-71 red and 983-23 fluorescent yellow green "Diamond Grade" retro-reflective striping. The striping shall slope downward away from the centerline of the apparatus at a 45 degree angle.

The retro-reflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retro-Reflective Sheeting for Traffic Control", Type I or better. _____ _____

ENGINE EXHAUST

The exhaust pipe from the engine shall not be modified from the design configuration that was provided from the chassis manufacturer.

Exhaust shall be equipped with MagnaGrip connects.

	Compliance YES	NO
Shielding shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed by the chassis manufacturer to comply with EPA equipment requirements.	_____	_____

ALUMINUM TREADBRITE "BACK OF CAB" OVERLAY

The area from just below the rear wall window on the back of the chassis cab shall be covered with aluminum treadbrite. The aluminum treadbrite shall be contoured to fit the 'shape' of the back of the cab. After installation, all edges of the overlay shall be sealed with a silicone based sealant.	_____	_____

CAB ENTRY STEP COVER

The OEM provided cab entry step on the side opposite the fuel tank shall be removed from the chassis provided brackets and replaced with a fabricated aluminum treadbrite "SINGLE STEP" step assembly.	_____	_____

FUEL TANK/STEP COVER

The OEM provided cab entry step on the same side as the fuel tank shall be removed from the chassis provided brackets and replaced with a fabricated aluminum treadbrite "SINGLE STEP" step assembly.	_____	_____

FRONT/REAR MUD FLAPS

Heavy duty black rubber mud flaps shall be provided on the front and rear wheels.

The mud flaps shall be attached to the apparatus in the front and the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.	_____	_____

FRONT/REAR AXLE NUT COVERS AND BABY MOONS

The front and rear axle shall have stainless steel nut covers and baby moons.	_____	_____

REAR PULLING EYES

Two rear 3/4" CRS pulling eyes shall be provided under the rear tailboard. The eyes shall have a minimum of a 3" clear opening for passing chains through the eye.	_____	_____

12 VOLT RADIO POWER FEED(S)

Two (2) 12 volt power feed wire(s) shall be provided in the cab for customer supplied and installed radio equipment.	_____	_____

RADIO ANTENNA

Two (2) radio antennas shall be provided and mounted for Customer installation of radio.	_____	_____

"AS BUILT" APPARATUS BODY OWNERS MANUAL CD (2)

Two "as built" apparatus body owner's manual CD's shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the CD. The CD's shall be "read only" and shall not allow modification.

To eliminate component confusion, generic CD's with equipment that is not provided on the apparatus body shall not be acceptable.	_____	_____

2 LB. BAG OF FASTENERS

A 2 lb. bag of fasteners used in the final assembly of the apparatus shall be provided. The bag shall contain a variety of fasteners and shall not be one single size.	_____	_____

DOT DRIVE AWAY KIT

Three triangular warning reflectors with carrying case and one 5 lb. ABC fire extinguisher with bracket shall be provided.	_____	_____

BID PROPOSAL TOTAL OPTION A: **$**_____

MINIMUM SPECIFICATIONS

OPTION B - CUSTOM:

INTENT OF SPECIFICATIONS

Compliance
YES NO

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The National Fire Protection Association Standard 1901, 2009 edition, unless otherwise specified in these specifications, shall prevail.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in continuous business for a minimum of thirty-five (35) years. A written chronological history of the bidder shall be included in the bid response package.

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. They shall also show that they are in a position to render prompt service and to furnish replacement parts for said apparatus.

Because of the severe service requirements the department will impose on this apparatus, each bidder shall provide a reference list of at least eight (8) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one (1) year. This list shall include contact names and phone numbers. To properly evaluate the builder's performance, at least one (1) of these departments shall serve populations of over 200,000, and the apparatus in this department shall been in service over seven (7) years. This reference list shall be included in the bidder's response package.

No experimental, prototype or recently introduced products without a verifiable, minimum four (4) year service record on the combination of the chassis and fire equipment proposed will be acceptable. For bid evaluation purposes, this information, including photographs and drawings of units previously constructed, shall be included in the bid response package.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare bid. There shall be no exception to this requirement.

These specifications shall indicate size, type, model and make of all component parts and equipment. _____ _____

QUALITY AND WORKMANSHIP:

The design of the apparatus must embody the latest approved automotive engineering practices.

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units that require periodic maintenance operations, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under "Performance tests and requirements".

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair. _____ _____

DELIVERY:

Since this vehicle is needed, it is desired that delivery of the vehicle, meeting these specifications, shall be provided within two hundred forty (240) calendar days from date of award of bid.

	Compliance YES	NO
Apparatus, to insure proper break-in of all components while still under warranty, shall be delivered under its own power. A qualified delivery engineer representing the contractor shall instruct the Fire Department Personnel in the proper operation, care and maintenance of the equipment delivered.	_____	_____

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 will be made, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall not have less than 25% nor more than 55% of the weight on the front axle and not less than 45% nor more than 75% on the rear axle. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

A. 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.

B. From a steady pace of 15 MPH the vehicle shall accelerate to 35 MPH within 30 seconds. This shall be accomplished without moving the gear selector.

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

D. The apparatus, fully loaded, shall be capable of obtaining a minimum speed of 50 miles per hour on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded). _____ _____

LIABILITY:

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance furnished under the contract. _____ _____

GENERAL CONSTRUCTION:

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of NFPA #1901. _____ _____

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator, without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance of 2000 lbs. It shall be the responsibility of the Purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance of 2,000 lbs.

The unequipped personnel weight shall be calculated at 250 lbs. per person, times the maximum number of persons to ride on the apparatus.

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

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

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

	Compliance YES	NO
Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.	_____	_____

EXCEPTIONS OR CLARIFICATIONS TO SPECIFICATIONS

These specifications have been carefully prepared by the Department, taking into consideration, among other items, performance of our previous apparatus. In order to provide a unit that we know will give outstanding performance in our particular operating environment, the following Chassis, Pump and Body specifications shall be strictly adhered to. Exceptions or Clarifications shall be allowed if they are judged by the department to be equal to or superior to those items specified, and will be given careful consideration provided they are listed and fully explained on a separate page entitled "Exceptions or Clarifications to Specifications". This list must refer to our specification page number and paragraph. Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Body or Pump, will not be accepted. Apparatus shall be inspected upon delivery for compliance with specifications. Deviations will not be tolerated and will be cause for rejection of apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications. Failure to provide this information shall be cause to reject the proposal as being non-responsive. _____ _____

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deems to be of their best interest to do so. _____ _____

CHASSIS STORAGE

The chassis on which this apparatus will be constructed, shall not be stored where it will be exposed to the sun, rain, snow, hail or other elements. The chassis shall be stored in an enclosed, protected environment until construction is begun. For evaluation purposes, photographs and a detailed description of the chassis storage provisions shall be included in the bid response package. There shall be no exception to these protected chassis storage provisions. _____ _____

BLUEPRINT DRAWINGS

All bidders must submit with their proposal blueprint drawings of the exact apparatus being proposed. Drawings of similar units **will not** be acceptable. Blueprints must be submitted on minimum "D" size, 24" x 36" paper to allow for an accurate, easy to read, visual interpretation of the apparatus proposed by the manufacturer.

The drawings shall show the complete left side view of the apparatus, including the chassis as well as right side and rear body views showing all compartment dimensions, door opening sizes, compartment depths, and total square foot of usable compartment space per compartment.

Any proposal received without these required drawings will be immediately rejected. _____ _____

PRODUCT LIABILITY INSURANCE

To adequately protect the Department, and its members, the manufacturer shall provide a minimum of $15,000,000.00 of liability insurance. A copy of the insurance certificate shall be included in the bidder's response package. _____ _____

DELIVERY

The unit shall be delivered under its own power, by a factory-trained representative. Bids that do not include delivery to the Purchaser, shall not be acceptable. The unit will remain insured by the apparatus manufacturer until the department accepts the unit. _____ _____

PUMP & APPARATUS TRAINING

The successful bidder shall provide a structured training course for personnel assigned to operate the apparatus, covering nomenclature of components, proper operation of the apparatus, daily operational maintenance checks, and other information necessary for a firefighter/driver/engineer to properly operate and maintain the apparatus.

Compliance
YES NO

It is intended that this training be organized in such a manner that both the mechanics and fire personnel receive full benefit of the aforementioned structured training.

The firefighter/operator training shall be conducted within one week after the vehicle is fully accepted and readied for service by the "Purchaser" or at a time mutually agreed upon by the "Purchaser" and "Supplier". _____ _____

WARRANTIES

The bidder shall submit copies of all warranties pertaining to the apparatus being bid. This shall include, at a minimum, the following:

1. Chassis and chassis components warranties--Minimum one (1) year
2. Bumper to bumper fire apparatus warranty--Minimum one (1) year
3. Pump warranty--Minimum five (5) years
4. Apparatus body corrosion perforation structural warranty, non-pro-rated— Minimum of ten (10) years
5. Tank warranty--Lifetime or Unlimited Time
6. Paint warranty, non-pro-rated--Minimum of ten (10) years. _____ _____

INFORMATION FOR CONTRACTORS

Sealed proposals are desired from reputable manufacturers of Automotive Fire/Rescue Apparatus in accordance with these attached specifications for the apparatus as briefly described below:

One custom class A pumper.

GENERAL REQUIREMENTS

Each bid must be accompanied by bidders accurate written and detailed specifications covering the apparatus and related items which the bidder is proposing to furnish and to which the apparatus furnished under contract must conform. It is the intent of these specifications to cover the furnishing to the Purchaser a complete apparatus constructed and equipped exactly as specified in the attached specifications. Any details of construction, materials, or equipment not specified are left to the discretion of the Contractor, whom will be responsible for all construction and manufacturing techniques involved in the assembly of the apparatus.

All aspects of the apparatus shall conform to any applicable rules/regulations imposed to such vehicles by any of the following Governing Agencies:

- National Fire Protection Association (not including recommended equipment).
- Occupational Safety Health Administration.
- Federal Motor Vehicle Safety Standards.
- Department of Transportation.
- Underwriters Laboratories. _____ _____

RELIABILITY OF CONTRACTOR/BIDDER

The contractor/bidder shall furnish evidence that he has the ability to design, engineer and construct the apparatus specified and shall clearly state the location of the facility used to manufacture and test the equipment when completed. Manufacturer must have a minimum of a twenty year track record in the manufacturing of fire/rescue apparatus.

The contractor/bidder shall be capable of performing all of the following items at their manufacturing facility. **Under no circumstance shall any of these items be sub-contracted to other manufacturers or fabricators**:

1. All pump mounting and related plumbing.
2. Complete fabrication of the apparatus body and components.
3. All 12 volt and 110 volt electrical wiring.
4. All painting and finish work.

Any contractor/bidder that does not perform all of the above items shall be rendered un-responsive and their bid proposal shall be eliminated from the bid evaluation procedure causing rejection of bid. _____ _____

EXCEPTIONS TO SPECIFICATIONS

It is the intent of the Purchaser to purchase a fire/rescue apparatus that has a proven

Compliance
YES NO

record of dependability and reliability in the fire/rescue service. Experimental manufacturing techniques or materials are not acceptable and will be immediately rejected. Exceptions to the attached specifications will be considered provided they are of equal or superior quality and/or value of what has been specified. All bidders shall provide supporting documentation with proposal that may prove the 'equal to' or 'superior' quality or value. The Purchaser shall be solely responsible for determining 'equal to' or 'superior' status. The Purchaser's decision regarding these items will be final and conclusive.

Any area(s) of the attached specification that contain statements such as 'no exceptions' or similar statements with the same general meaning shall be strictly adhered to. The Purchaser has deemed these items to be extremely important to achieve the final delivered product that the Purchaser wishes to purchase. Any exceptions to these areas will result in immediate rejection of that bidder's proposal regardless of bid price.

All exceptions, no matter how minor, or seemingly un-important, must be detailed fully with supporting documentation submitted with proposal. Failure to submit exceptions and supporting documentation will cause immediate rejection of bidder's proposal.

All bidders shall be aware that the attached specifications shall be made part of the Purchase Contract between the Purchaser and the contractor/bidder. The successful bidder will be required to meet all construction, fabrication, and material requirements as called for in these specifications. Any deviations from these specifications must be specifically listed, explained, and submitted with the bid proposal. Failure to submit the detailed exceptions will indicate to the Purchaser that an exception is not taken and the bidder will provide the construction, fabrication, and material requirements as desired by the Purchaser and detailed in the attached specifications. Submission of list of exceptions does not indicate acceptance/approval of exceptions by the Purchaser.

In the unlikely event that the contractor/bidder fails to construct the apparatus as requested in the attached specifications, the Purchaser retains the right to reject the entire apparatus and invoice the contractor/bidder for any costs or losses that the Purchaser may have incurred due to the contractor/bidder failing to meet specifications described in the purchase contract. _____ _____

"BRAND NAME" CLAUSE

It is the intent of the Purchaser to purchase components that have a proven record of Fire Department use and satisfaction. All bidders should be aware that where brand names are listed in these specifications, comparable products from different manufacturers may be acceptable. The bidder shall simply provide the Department with a listing of brands that they intend to provide in lieu of the originally requested brand.

The Fire Department will evaluate the proposed brand name to determine if the brand is equal to or superior to the originally requested brand. _____ _____

CONTRACTOR'S SPECIFICATIONS

All contractors or bidders shall submit a detailed specification as to how the apparatus being proposed will be constructed. The attached specifications, copies, or re-typed versions of these specifications shall not be submitted as contractors specifications, (this will not pertain to the contractor whose specifications these are based on). Any manufacturer doing so will be rejected immediately on the following grounds:

"Contractor/bidder did not provide sufficient supporting data describing the contractors/bidders manufacturing and fabrication processes implemented in the construction of the proposed apparatus versus what was requested in the Purchaser's original specifications."

The contractors/bidders specification shall describe, in detail, all manufacturing and fabrication processes as well as material used in the construction of the apparatus. Other items that must be clearly listed in the contractors/bidders specifications shall include all compartment and door dimensions, cubic feet of usable storage space per compartment, and all other items specifically called for in the attached specifications. _____ _____

CORPORATE OWNERSHIP OF MANUFACTURER

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

	Compliance YES	NO
Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.	_____	_____

CORPORATE CONTACT INFORMATION

The Purchaser shall be provided with the following information to allow them to contact the President/CEO of the manufacturing company (not dealer) when deemed necessary:

1. Name of Company President
2. Office address
3. Office telephone number
4. Email address
5. Home address
6. Home telephone number
7. Cellular telephone number (business and personal, if applicable)

If the manufacturing company is a subsidiary of, division of, or owned by a different Company, the above information shall also be provided on the 'Parent' Company.

There will be no exception to this requirement. _____ _____

FIRST CLASS FIRE APPARATUS

If the manufacturer or bidder for the apparatus manufacturer represents two or more different lines of apparatus and/or operates two or more manufacturing plants, it should be clearly stated in the bid proposal.

In addition to this requirement, the bidder shall give a detailed explanation of why the particular line, brand, model or manufacturing facility will be used.

Manufacturer's or bidder's with multiple lines (two or more) or multiple manufacturing facilities (two or more) shall be required to submit bid proposals on only the top quality brand/model or from the top quality manufacturing facility.

It is the intention of the Purchaser to purchase a top of the line quality fire apparatus. Any bidder that submits a bid on a "lower end" line, brand, model or from a "lower end" manufacturing facility will be immediately rejected.

The Purchaser is not interested in purchasing a manufacturer's or bidders "lower end" apparatus. Because of this, any bids submitted that do not comply with the above requirements will be immediately rejected. _____ _____

BANKRUPTCY STATEMENT

If the manufacturer of the apparatus, or if any owner, shareholder, or immediate relative of an owner or shareholder that has previously been involved in or held ownership in any company that has filed bankruptcy or any other type of reorganization plan, it must be clearly stated in the bid proposal. The statement must include details and dates of all occurrences. _____ _____

AWARD OF CONTRACT

The bid shall be awarded to the contractor or bidder that most closely meets all requirements set forth in the attached specifications. All contractor's or bidder's shall be aware that exceptions taken will not affect the award of bid provided that all exceptions are determined to be 'equal to' or 'superior to' the attached specifications. The Purchaser shall be solely responsible to determine this.

The purchase contract shall list the manufacturer of the apparatus as the Contractor and shall not include a sales representative or company as the Contractor unless these are one in the same. The purchase contract shall be presented to the Purchaser within 15 days of notification of bid award to the contractor/bidder.

All contractors or bidders shall be aware that it is not the intention of the Purchaser to award the contract to the apparent low bidder. The Purchaser reserves the right to reject any or all bids and to accept the bid that the Purchaser feels is in the best interest of the Purchaser both now and in the future. _____ _____

Compliance
YES NO

24/7 FACTORY SUPPORT

The manufacturer (not dealer) of the apparatus shall maintain a 24 hours per day,

7 days per week, 365 days per year factory support contact system to allow the Purchaser to contact the manufacturer in case of emergency. The system shall be activated by a telephone call to the manufacturing facility. _____ _____

DELIVERY OF COMPLETED APPARATUS

When the apparatus is completed at the manufacturer's facility, a factory trained delivery technician shall deliver the apparatus to the Purchaser. The technician shall familiarize all individuals designated by the Purchaser on the operation and maintenance of the apparatus at this time. The technician shall remain at the Purchaser's location for a sufficient period of time to allow all individuals to gain a thorough knowledge of the operation of the apparatus. _____ _____

FIRE STATION PRE-CONSTRUCTION CONFERENCE

The factory authorized distributor shall perform a pre-construction conference at the fire station to finalize all construction details. _____ _____

WEB BASED CUSTOMER INTERACTION

The manufacturer shall provide web based access to construction photographs while the apparatus is being built. This access shall be provided through a secured area on the manufacturer's website and shall be accessible only by individuals authorized by the Department.

The following photos, at minimum, shall be available:

1. Chassis (front, left, right and rear).
2. Body prior to pre-paint (front, left, right and rear).
3. Body painted (front, left, right and rear).
5. Pump module, if applicable, (front, left, right and rear).
6. Final assembly (front, right, left and rear).

This web based interaction will enhance the communication process during the construction of the apparatus and will provide the Department remote access to the apparatus during construction process.

Due to the complexity of apparatus, this interaction will provide the Department a method of checking specification compliance. Because this interaction is considered critical to the construction process, no exception will be allowed to this requirement. _____ _____

BLUEPRINT DRAWINGS

All bidders must submit with their proposal blueprint drawings of the exact apparatus being proposed. Drawings of similar units **will not** be acceptable. Blueprints must be submitted on minimum "D" size, 24" x 36" paper to allow for an accurate, easy to read, visual interpretation of the apparatus proposed by the manufacturer.

The drawings shall show the complete left side view of the apparatus, including the chassis as well as right side and rear body views showing all compartment dimensions, door opening sizes, compartment depths, and total square foot of usable compartment space per compartment.

Any proposal received without these required drawings will be immediately rejected. _____ _____

BID GUARANTY

All bids shall be accompanied by a Surety or Bid Bond in the amount of 10 percent of the bid amount made payable to the Purchaser and provided by the manufacturer of the apparatus. (Bonds submitted by dealers or agents will not be acceptable.) Failure to submit this bond, or submission by a dealer or agent in lieu of the manufacturer, will result in immediate rejection of said bid proposal. _____ _____

BID VALIDITY PERIOD

In order to allow sufficient time to allow the Purchaser, or designated officials thereof, sufficient time to evaluate all bid proposals received, all bids must remain valid for a period not less than 60 calendar days from date of bid opening. All prices must remain firm for the entire period.

	Compliance YES	NO
During the evaluation period, bidders may be asked to further clarify their proposals or answer questions that may arise during the evaluation of bid. It is the responsibility of the bidder to make clarifications, **in writing**, on the fire apparatus manufacturer's letterhead and signed by the President and/or General Manager of the manufacturing company. These written clarifications must be received within 72 hours of when they were requested by the Purchaser. Failure to respond within the allowed time period will deem the bid proposal unresponsive and it will be rejected.		
All information that is requested in the original bid packet must be included in the sealed bid proposal. Bidders will not be allowed to submit required documents after opening of bids. Failure to include required information with bid will result in rejection of bid proposal.	_____	_____

CERTIFICATION OF NFPA 1901 COMPLIANCE

As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA 1901-2009 are met. The manufacturer shall be responsible for providing or performing only the items requested by the Purchaser in the documents provided to the manufacturer by the Purchaser.

Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA 1901-2009 Standard. If the Purchaser has elected to provide, perform, outsource and/or contract with a third party, any item required by NFPA 1901-2009 (per the previous paragraph), the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901-2009.

This "Statement of Exceptions" shall include:

1. A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance.

2. A description of the particular aspect of the apparatus that is not compliant.

3. A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.

4. An identification of the entity who will be responsible for making the necessary post-delivery changes or modifications to the apparatus to achieve full compliance with the applicable standard.

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof.

The Purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA 1901-2009.	_____	_____

NFPA REQUIRED EQUIPMENT

The end user of this apparatus shall provide all other equipment and accessories that are required by NFPA 1901 but not specifically listed in these specifications.	_____	_____

MAXIMUM TOP SPEED

The maximum top speed of this apparatus shall be determined using the following NFPA 1901 Chapter 4 criteria:

- Apparatus with 1250 gallon combined water tank capacity shall not exceed 60 MPH. - Apparatus with GVWR of over 50,000 lbs. shall not exceed 60 MPH. - Apparatus weighing over 26,000 lbs. shall not exceed 68 MPH.	_____	_____

MODEL

The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.	_____	_____

	Compliance YES	NO
MODEL YEAR		
The chassis shall have a vehicle identification number that reflects a 2015 model year.	_____	_____
COUNTRY OF SERVICE		
The chassis shall be put in service in the country of United States of America (USA).		
The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis.	_____	_____
APPARATUS TYPE		
The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 1250 gallons per minute (4731.8L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.	_____	_____
VEHICLE TYPE		
The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.	_____	_____
AXLE CONFIGURATION		
The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.	_____	_____
GROSS AXLE WEIGHT RATINGS FRONT		
The front gross axle weight rating (GAWR) of the chassis shall be 20,000 pounds.		
This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.	_____	_____
GROSS AXLE WEIGHT RATINGS REAR		
The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.		
This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.	_____	_____
PUMP PROVISION		
The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location.	_____	_____
CAB STYLE		
The cab shall be a custom, fully enclosed, MFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.		
The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal, the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.		
The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.		

Compliance
YES NO

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick a luminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 131.10 inches with 54.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 49.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.50 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 21.50 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches. _____ _____

OCCUPANT PROTECTION

The vehicle shall include the Advanced Protection System™ (APS) which shall secure belted occupants and increase the survivable space within the cab. The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The system components shall include:

- Driver steering wheel airbag
- Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag.
- Large driver, officer, and crew area side curtain airbags
- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries

Compliance
YES NO

- Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event

- Integrated outboard crash sensors mounted at the perimeter of the vehicle – detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM

- Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel

Frontal impact protection shall be provided by the outboard sensors and the RCM. In a qualifying front impact event the outboard sensors provide inputs to the RCM. The RCM activates the steering wheel airbag, driver side dual knee airbags (patent pending), officer side knee airbag, and advanced seat belts for each occupant in the cab.

The APS frontal impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 208. Frontal impact into a rigid barrier at 25 mph shall be conducted by an independent third party test facility using belted 95th percentile Hybrid II test dummies.

Rollover, side impact, and ejection mitigation shall be provided by the outboard sensors and the RCM. In qualifying rollover or side impact events the outboard sensors provide inputs to the RCM. The RCM activates the side curtain airbags and advanced seat belts for each occupant in the cab. The RCM measures roll angle, lateral acceleration, and roll rate to determine if a rollover event or side impact event is imminent or occurring.

In the event of a qualifying offset or other non-frontal impact, the RCM shall determine and intelligently deploy the front impact protection system, the side impact protection system, or both front and side impact protection systems based on the inputs received from the outboard crash sensors.

The APS side impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 214. Side impact from a moving barrier at 17 mph shall be conducted by an independent third party test facility using belted 50th percentile ES-2re test dummies. _____ _____

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the "Classic" design.

The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A chrome plated molded plastic bezel shall be provided on each side around each set of four lamps. _____ _____

FRONT GRILLE

The front fascia shall include a box style, 304 stainless steel front grille 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 732.00 square inches. The upper portion of the grille shall be hinged to provide service access behind the grille. _____ _____

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection. _____ _____

CAB SIDE DRIP RAIL

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

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

	Compliance YES	NO
All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils. The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper followed by sealing the seams with SEM brand seam sealer. The cab shall then be painted the specific color designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum thickness of 2.00 mils, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.	_____	_____
CAB PAINT MANUFACTURER The cab shall be painted with PPG Industries paint.	_____	_____
CAB PAINT PRIMARY/LOWER COLOR The lower paint color shall be white.	_____	_____
CAB PAINT WARRANTY The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.	_____	_____
CAB PAINT INTERIOR The visible interior cab structure surfaces shall be painted with a Zolatone #20-71 onyx black texture finish.	_____	_____
CAB ENTRY DOORS The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate. The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit. All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.	_____	_____
CAB ENTRY DOOR TYPE All cab entry doors shall be full length in design to fully enclose the lower cab steps.	_____	_____
CAB INSULATION The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.	_____	_____
CAB STRUCTURAL WARRANTY DETAILS OF WARRANTY MUST ACCOMPANY ALL BIDS. The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. The warranty period shall commence on the date the vehicle is delivered to the first end user.	_____	_____

Compliance
YES NO

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi–Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request. _____ _____

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current Weldon brand of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof. _____ _____

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed in the center dash area behind the rocker switch panel which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel. _____ _____

MULTI-PLEX DISPLAY

The multi-plex electrical system shall include a Weldon Vacuum Florescent Display (VFD) display which shall be located in the switch panel with a location specific to the customer's needs. The VFD display is a two (2) line, forty (40) character display capable of showing a wide range of data from the multi-plex system.

In addition to showing system errors, the VFD shall display:

- Warning – Door Open
  Door Location
- Seat Violation
  Park Brake Released
- Emergency Master On
  Response Mode
- Emergency Master On
  Scene Mode

A momentary push button shall be located on the dash which when pressed acknowledges the current message and displays the next message. If no message is present, the VFD shall default to display the Fire Department Name.

The VFD display shall measure approximately 5.00 inches wide X 2.00 inches tall. _____ _____

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multi-plex electrical system. The following information shall be recorded:

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

	Compliance YES	NO
Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.	_____	_____

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud. A 200 amp master switched and fused power and ground stud shall be provided and installed on the chassis near the left hand battery box for OEM body connections. _____ _____

AUXILIARY ACCESSORY POWER

An auxiliary set of power and ground studs shall be provided and installed behind the electrical center cover with a 60 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 60 amp load switched with the master power switch. _____ _____

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion. _____ _____

ENGINE

The chassis engine shall be a Cummins ISL9 engine. The ISL9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 400 - 450 horse power at 1900 RPM and shall be governed at 2100 RPM. The torque rating shall feature 1250 foot pounds of torque at 1400 RPM with 543 cubic inches (8.9 liters) of displacement.

The ISL9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2013 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab. _____ _____

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high. _____ _____

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit. _____ _____

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged. _____ _____

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is

	Compliance YES	NO
released, or when the transmission is placed in neutral.	_____	_____

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

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

AUXILIARY ENGINE BRAKE

The engine shall utilize a variable geometry turbo (VGT). The VGT auxiliary engine brake shall be an integral part of the turbo and shall offer a variable rate of exhaust flow, which when activated shall slow the engine and in turn slow the vehicle.

The VGT shall actuate the vehicle's brake lights when engaged as an auxiliary brake. A cutout relay shall be installed to disable the VGT when in pump mode or when an ABS event occurs. The VGT engine brake shall activate at a 0% accelerator throttle position when in operation mode.	_____	_____

AUXILIARY ENGINE BRAKE CONTROL

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

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

The variable geometry turbo brake control shall be controlled through an on/off rocker switch.	_____	_____

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.	_____	_____

FLUID FILLS

The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be accessible through the front left side mid step.	_____	_____

ENGINE DRAIN PLUG

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

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.	_____	_____

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The harness shall contain connectors for a FRC Pump Boss pressure governor and a multiplexed gauge. Separate circuits shall be included for pump controls, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall be designed for a top mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which shall incorporate "Pump Engaged" and "OK to Pump" indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.	_____	_____

Compliance
YES NO

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required. _____ _____

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm. _____ _____

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive.

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

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall utilize a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, an air to air charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injection molded polymer eleven (11) blade fan with a fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements, and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufacturer’s requirements. _____ _____

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame color. _____ _____

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and

	Compliance YES	NO
de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.		
Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.	_____	_____

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.	_____	_____

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.	_____	_____

COOLANT HOSES

The cooling system hoses shall be silicone heater hose with rubber hoses in the cab interior. The radiator hoses shall be formed silicone coolant hoses with formed aluminized steel tubing. All heater hose, silicone coolant hose, and tubing shall be secured with stainless steel constant torque band clamps.	_____	_____

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the right hand side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the right hand side. The system shall utilize a replaceable dry type filter which ensures dust and debris remains safely contained inside the housing during operation via leak-tight seals. The service cover shall be located on the bottom of the housing, eliminating the chance of contaminating the air intake system during air filter service.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter element, which shall result in pressure differential for improved horsepower and fuel economy. The air intake ember separator shall be mounted within easy access via a hinged panel behind the right hand side headlight module. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.	_____	_____

AIR INTAKE PROTECTION

A light duty skid plate shall be supplied for the engine air intake system below the right front side of the cab. The skid plate shall provide protection for the air intake system from light impacts, stones, and road debris.	_____	_____

ENGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter (DPF), a diesel oxidation catalyst, and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be injected into the system through the decomposition tube between the DPF and SCR.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The DPF, the decomposition tube, and the SCR canister through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

	Compliance YES	NO
The exhaust system shall be mounted below the frame in the outboard position with the SCR canister in line rearward of the DPF.	_____	_____

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

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

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.	_____	_____

ENGINE EXHAUST ACCESSORIES

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

Exhaust shall be equipped with MagnaGrip connects.	_____	_____

ENGINE EXHAUST WRAP

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

TRANSMISSION

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

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:			
1st	3.49:1		
2nd	1.86:1		
3rd	1.41:1		
4th	1.00:1		
5th	0.75:1		
6th	0.65:1 (if applicable)		
Rev	5.03:1	_____	_____

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.	_____	_____

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the

Compliance
YES NO

fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required. _____ _____

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. _____ _____

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

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

TRANSMISSION COOLING SYSTEM

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

TRANSMISSION DRAIN PLUG

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

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty. _____ _____

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position. _____ _____

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®. _____ _____

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to

	Compliance YES	NO
accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.	_____	_____

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Hale QMAX pump.	_____	_____

MIDSHIP PUMP GEARBOX DROP

The Hale pump gearbox shall have an “L” (long) drop length.	_____	_____

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.28:1 (23).	_____	_____

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 80.00 inches.	_____	_____

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1003 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

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

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

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.	_____	_____

FUEL SHUTOFF VALVE

A fuel shutoff valve shall be installed in the fuel draw line at the primary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

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

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.	_____	_____

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length. The baffled tank shall be made of 14 gauge aluminized steel. The exterior of the tank shall be painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance. In addition, the exterior of the fuel tank shall be coated with Spar-Liner spray on protective coating.

The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.	_____	_____

	Compliance YES	NO
FUEL TANK FILL PORT		
The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.	_____	_____
FRONT AXLE		
The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle.	_____	_____
FRONT AXLE WARRANTY		
The front axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.	_____	_____
FRONT WHEEL BEARING LUBRICATION		
The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.	_____	_____
FRONT SHOCK ABSORBERS		
Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life. The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would. The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers. Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.	_____	_____
FRONT SUSPENSION		
The front suspension shall include a nine (9) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.	_____	_____
STEERING COLUMN/ WHEEL		
The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver’s position. The steering wheel shall be covered with black polyurethane foam padding. The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.	_____	_____
ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR		
The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.	_____	_____
POWER STEERING PUMP		
The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type.	_____	_____

	Compliance YES	NO
FRONT AXLE CRAMP ANGLE		
The chassis shall have a front axle cramp angle of 48-degrees to the left and 44-degrees to the right.	_____	_____
POWER STEERING GEAR		
The power steering gear shall be a TRW model TAS 65 with an assist cylinder.	_____	_____
CHASSIS ALIGNMENT		
The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.	_____	_____
REAR AXLE		
The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.		
The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.		
The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.	_____	_____
REAR AXLE WARRANTY		
The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.	_____	_____
REAR AXLE DIFFERENTIAL LUBRICATION		
The rear axle differential shall be lubricated with oil.	_____	_____
REAR WHEEL BEARING LUBRICATION		
The rear axle wheel bearings shall be lubricated with oil.	_____	_____
VEHICLE TOP SPEED		
The top speed of the vehicle shall be approximately 68 MPH +/-2 MPH at governed engine RPM.	_____	_____
REAR SUSPENSION		
The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.	_____	_____
The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.		
FRONT TIRE		
The front tires shall be Goodyear 385/65R-22.5 18PR "J" tubeless radial G296 MSA mixed service tread. The front tire stamped load capacity shall be 18,740 pounds per axle with a speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.		
The Goodyear Intermittent Service Rating load capacity shall be 20,000 pounds per axle with a maximum speed of 68 miles per hour when properly inflated to 120 pounds per square inch. If the maximum speed is 70-75 MPH the tire shall be rated at stamped rating of 18,740 lbs. The Goodyear Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes.		

	Compliance YES	NO
The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.	_____	_____

REAR TIRE

The rear tires shall be Goodyear 12R-22.5 16PR "H" tubeless radial G661 HSA mixed service tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.	_____	_____

REAR AXLE RATIO

The rear axle ratio shall be 4.89:1.	_____	_____

FRONT WHEEL

The front wheels shall be Accuride hub piloted, 22.50 inch X 12.25 inch polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall be forged from a single piece of aluminum, designed to be corrosion resistant and are engineered for a long life.	_____	_____

REAR WHEEL

The rear wheels shall be Accuride hub piloted, heavy duty 22.50 inch X 8.25 inch aluminum wheels. Each outer wheel shall have a polished aluminum finish on the exterior surface and each inner wheel shall have a machine finish. The wheels shall be forged from a single piece of aluminum which shall be corrosion resistant, engineered to be lightweight and provide exceptional performance. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.	_____	_____

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

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

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

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

A momentary rocker style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light and the light on the rocker switch shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

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

	Compliance YES	NO
steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.	_____	_____

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.	_____	_____

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall feature a cast iron shoe.	_____	_____

PARK BRAKE

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

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.		
The parking brake actuation valve shall be mounted on the center of the tunnel within easy access of both the driver and officer positions.	_____	_____

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.	_____	_____

REAR BRAKE DUST SHIELDS

The rear brakes shall be equipped with brake dust shields.	_____	_____

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be mounted behind the battery box on the left hand side.	_____	_____

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.	_____	_____

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.	_____	_____

AIR COMPRESSOR

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

AIR GOVERNOR

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

	Compliance YES	NO
requirements. The air governor shall be located on the air dryer bracket on the left frame rail behind the battery box.	_____	_____

MOISTURE EJECTORS

A heated, automatic moisture ejector with a manual drain provision shall be installed on the wet tank of the air supply system. Manual pet-cock type drain valves shall be installed on all remaining reservoirs of the air supply system.	_____	_____

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.	_____	_____

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.	_____	_____

WHEELBASE

The chassis wheelbase shall be 195.00 inches.	_____	_____

REAR OVERHANG

The chassis rear overhang shall be 47.00 inches.	_____	_____

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the “box method” shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

Proposals offering warranties for frames not including cross members shall not be considered.	_____	_____

	Compliance YES	NO

FRAME WARRANTY

Summary of Warranty Terms:

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty period shall commence on the date the vehicle is delivered to the first end user. _____ _____

FRAME CLEAR AREA

The chassis frame shall be left clear of chassis mounted components between the centerline of chassis and the left hand frame rail from 34.00 inches forward of the centerline of rear axle to 46.00 inches forward of the centerline of rear axle for OEM installed components. _____ _____

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other chassis mounted components shall be painted with gloss black paint. Paint shall be applied prior to airline and electrical wiring installation. _____ _____

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide. _____ _____

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 21.00 inches ahead of the cab. _____ _____

FRONT BUMPER EXTENSION FRAME WIDTH

The front bumper extension frame shall feature an overall width of 48.25 inches. _____ _____

AIR HORN

The chassis shall include two (2) Hadley brand E-Tone air horn which shall measure 24.50 inches long with a 6.00 inch round flare. The air horn shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet. _____ _____

AIR HORN LOCATION

The air horn shall be recess mounted in the front bumper face in the furthest inboard position, relative to the outside of the frame rail, on the left side of the bumper. _____ _____

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system. _____ _____

ELECTRONIC SIREN SPEAKER

There shall be one (1) Whelen Engineering Inc. model SA122FMP, 100 watt cast aluminum speaker provided. The speaker shall measure 4.44 inches tall X 7.44 inches wide X 5.18 inches deep. The speaker shall include a polished aluminum grille. _____ _____

Compliance
YES NO

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the left side outboard of the frame rail in the far outboard position. _____ _____

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the chassis frame, shall be installed in a rearward position out of the approach angle area, bolted directly to the side of the chassis frame with grade 8 bolts. _____ _____

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab. _____ _____

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump housing. _____ _____

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis. _____ _____

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self-locking window rubber. _____ _____

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

	Compliance YES	NO
There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows. The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.	_____	_____

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.	_____	_____

GLASS REAR DOOR RH

The rear right hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.	_____	_____

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.	_____	_____

GLASS REAR DOOR LH

The rear left hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.	_____	_____

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.	_____	_____

GLASS SIDE MID RH

The cab shall include a window on the right side behind the front and ahead of the crew door which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.	_____	_____

GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.	_____	_____

GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.	_____	_____

GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.	_____	_____

CLIMATE CONTROL

The cab shall include a 57,500 BTU @ 425 CFM front overhead heater/defroster which shall be provided and installed above the windshield between the sun visors. The cab shall also include a combination heater air-conditioning unit mounted on the engine tunnel. This unit shall offer eight (8) adjustable louvers, four (4) forward facing		

	Compliance YES	NO
and four (4) rearward facing, a temperature control valve and two (2) blowers offering three (3) speeds which shall be capable of circulating 550 cubic feet of air per minute. The unit shall be rated for 42,500 BTU/Hr of cooling and 36,000 BTU/Hr of heating. The temperature and blower controls shall be located on the heater/air conditioning unit.		
All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.		
The air conditioner lines shall be a mixture of custom bend zinc coated steel fittings and Aero-quip GH 134 flexible hose with Aero-quip EZ clip fittings.	_____	_____
CLIMATE CONTROL DRAIN		
The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.	_____	_____
CLIMATE CONTROL ACTIVATION		
The heating and defrosting controls shall be located on the front overhead climate control unit. There shall be additional heating and air conditioning controls located on the engine tunnel mounted climate control unit.	_____	_____
A/C CONDENSER LOCATION		
A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.	_____	_____
A/C COMPRESSOR		
The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32,000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.	_____	_____
UNDER CAB INSULATION		
The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.		
The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.		
The engine tunnel insulation shall measure approximately 0.75 inch thick including a vertically lapped polyester fiber layer, a 1.0 lb/ft² PVC barrier layer, an open cell foam layer, and a moisture and heat reflective foil facing reinforced with a woven fiberglass layer. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.		
The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.	_____	_____
INTERIOR TRIM FLOOR		
The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.	_____	_____
INTERIOR TRIM		
The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.	_____	_____
REAR WALL INTERIOR TRIM		
The rear wall of the cab shall be trimmed with vinyl.	_____	_____

	Compliance YES	NO
HEADER TRIM		
The cab interior shall feature header trim above the driver and officer positions constructed of vacuum formed ABS material.	_____	_____
TRIM CENTER DASH		
The main center dash area shall be constructed of durable vacuum formed ABS composite.	_____	_____
TRIM LH DASH		
The left hand dash shall be a one (1) piece durable vacuum formed ABS composite housing which shall be custom molded for a perfect fit around the instrument panel. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.	_____	_____
TRIM RH DASH		
The right hand dash trim shall consist of a vacuum formed ABS composite module, which contains a glove compartment with a hinged locking door and a Mobile Data Terminal (MDT) provision. The glove compartment size shall be 13.50 inches wide X 6.25 inches high X 5.50 inches deep. The MDT provision shall be provided above the glove compartment.	_____	_____
ENGINE TUNNEL TRIM		
The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.	_____	_____
POWER POINT DASH MOUNT		
The cab shall include one (1) 12 volt cigarette lighter type receptacle in the cab dash to provide a power source for 12 volt electrical equipment. The receptacle shall be wired to be live with the battery master switch.	_____	_____
STEP TRIM		
Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.	_____	_____
UNDER CAB ACCESS DOOR		
The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.	_____	_____
INTERIOR DOOR TRIM		
The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.	_____	_____
DOOR TRIM CUSTOMER NAMEPLATE		
The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.	_____	_____
CAB DOOR TRIM REFLECTIVE		
The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white		

	Compliance YES	NO
stripes. The chevron tape shall measure 6.00 inches in height.	_____	_____
INTERIOR GRAB HANDLE "A" PILLAR		
There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each “A” post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.	_____	_____
INTERIOR GRAB HANDLE FRONT DOOR		
Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.	_____	_____
INTERIOR GRAB HANDLE REAR DOOR		
A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.	_____	_____
INTERIOR SOFT TRIM COLOR		
The cab interior soft trim surfaces shall be gray in color.	_____	_____
INTERIOR TRIM SUNVISOR		
The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.	_____	_____
INTERIOR ABS TRIM COLOR		
The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.	_____	_____
INTERIOR FLOOR MAT COLOR		
The cab interior floor mat shall be gray in color.	_____	_____
CAB PAINT INTERIOR DOOR TRIM		
The inner door panel surfaces shall be painted with Zolatone #20-71 onyx black texture finish.	_____	_____
DASH PANEL GROUP		
The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.	_____	_____
SWITCHES CENTER PANEL		
The center dash panel shall include six (6) switch positions in the upper left portion of the panel. A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.	_____	_____
SWITCHES LEFT PANEL		
The left dash panel shall include eight (8) switches in a single row configuration. Five (5) of the switches shall be rocker type and the left three (3) shall be the headlight switch, the instrument lamp dimmer switch and the windshield wiper/washer control switch. A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be		

	Compliance YES	NO
two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.	_____	_____

SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.	_____	_____

SEAT BELT WARNING

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

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

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear 1800.	_____	_____

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.	_____	_____

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom Sierra model seat with air suspension. The four-way seat shall feature 3.00 inch vertical travel air suspension and manual fore and aft adjustment with 5.00 inches of travel. The suspension control shall be located on the seat below the left front corner of the bottom cushion. The seat shall also feature integral springs to isolate shock.

The seat position shall include a three-point shoulder harness with lap belt and an automatic retractor attached to the cab. The buckle portion of the seat belt shall be mounted on a semi-rigid stalk extending from the seat base within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 37.00 inches measured with the seat suspension height adjusted to the upper limit of its travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.	_____	_____

SEAT BACK DRIVER

The driver’s seat shall feature a two (2) way adjustable lumbar support and offer an infinite fully reclining adjustable titling seat back. The seat back shall also feature a contoured head rest.	_____	_____

SEAT MOUNTING DRIVER

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

Compliance
YES NO

OCCUPANT PROTECTION DRIVER

The driver's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The driver's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the driver, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

- Large side curtain airbag - protects the driver's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the driver in a qualifying event by covering the window and the upper portion of the door.

- Dual knee airbags (patent pending) with energy management mounting (patent pending) - protects the driver's lower body from dangerous surface contact injuries, acceleration injuries, and from intrusion as well as locks the lower body in place so the upper body shall be shall be slowed by the load limiting seat belt.

Steering wheel airbag - protects the driver's head, neck, and upper torso from contact injuries, acceleration injuries, and contact points with intrusive surfaces as a result of a collision. _____ _____

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles. _____ _____

SEAT BACK OFFICER

The officer's seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically**.**

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto- locking system.

	Compliance YES	NO
Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.		
The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.		
The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.	_____	_____

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.	_____	_____

OCCUPANT PROTECTION OFFICER

The officer's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The officer's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the officer, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.
- Large side curtain airbag - protects the officer's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the officer in a qualifying event by covering the window and the upper portion of the door.

Knee airbags - protects the officer's lower body from dangerous surface contact injuries, acceleration injuries, and from contact points with intrusive surfaces as a result of a collision as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.	_____	_____

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.	_____	_____

SEAT REAR FACING OUTER LOCATION

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right side front seat.	_____	_____

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be spring load hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather

Compliance
YES NO

than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles. _____ _____

SEAT BACK REAR FACING OUTER

The rear facing outboard seat shall feature a Bostrom SecureAll™ self contained breathing apparatus (SCBA) locking system which shall store most U.S. and International SCBA brands and bottle sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically**.**

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

The SecureAll™ shall include a release handle which shall be integrated into the center of the bottom seat cushion for easy access and to eliminate hooking the release handle with clothing or other equipment.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity. _____ _____

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seats shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats. _____ _____

OCCUPANT PROTECTION RFO

The rear facing outer seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each rear facing outer seating position APS shall include:

- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - protects each occupant's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to each seating position with an airbag custom designed for each cab configuration. _____ _____

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall. _____ _____

SEAT CREW FORWARD FACING CENTER

The crew area shall include a seat in the forward facing center position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS

	Compliance YES	NO
feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches. This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.	_____	_____

SEAT BACK FORWARD FACING CENTER

The forward facing center seat shall feature a SecureAll™ self contained breathing apparatus (SCBA) locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool. The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically**.** The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto- locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions. The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment. The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.	_____	_____

OCCUPANT PROTECTION FFC

The forward facing center seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection. Each forward facing center seating position APS shall include: • APS advanced seatbelt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries. Side curtain airbag - provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to crew seating with an airbag custom designed for each cab configuration.	_____	_____

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be

	Compliance YES	NO
painted with the same color as the remaining interior.	_____	_____
SEAT FRAME FORWARD FACING STORAGE ACCESS		
There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height.	_____	_____
SEAT MOUNTING FORWARD FACING CENTER		
The forward facing center seats shall be installed facing the front of the cab.	_____	_____
CAB FRONT UNDERSEAT STORAGE ACCESS		
The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.	_____	_____
SEAT COMPARTMENT DOOR FINISH		
All under seat storage compartment access doors shall have a Zolatone #20-71 onyx black texture finish.	_____	_____
HELMET STORAGE FRONT LOCATION		
The front cab area shall include two (2) helmet storage brackets located overhead on the right and left hand sides of the cab.	_____	_____
HELMET STORAGE FRONT		
The front cab area shall include Ziamatic model UHH-1 helmet storage bracket designed to meet current NFPA regulations. The UHH-1 shall securely fasten fire helmets to flat cab surfaces. The UHH-1 utilizes a helmet hook and an adjustable strap to accommodate nearly any helmet size or configuration.	_____	_____
HELMET STORAGE FRONT CREW OUTER LOCATION		
The front outboard crew area of the cab shall include two (2) helmet storage brackets. The brackets shall be located overhead on both the right and left side.	_____	_____
HELMET STORAGE FRONT CREW OUTER		
The front outer crew area shall include Ziamatic model UHH-1 helmet storage designed to meet current NFPA regulations. The UHH-1 shall securely fasten fire helmets to flat cab surfaces. The UHH-1 utilizes a helmet hook and an adjustable strap to accommodate nearly any helmet size or configuration.	_____	_____
HELMET STORAGE FRONT CREW CENTER LOCATION		
The front inboard crew area of the cab shall include one (1) helmet storage bracket located overhead on the right side.	_____	_____
HELMET STORAGE FRONT CREW CENTER		
The front center crew area shall include Ziamatic model UHH-1 helmet storage designed to meet current NFPA regulations. The UHH-1 shall securely fasten fire helmets to flat cab surfaces. The UHH-1 utilizes a helmet hook and an adjustable strap to accommodate nearly any helmet size or configuration.	_____	_____
WINDSHIELD WIPER SYSTEM		
The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.	_____	_____
ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR		
The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.	_____	_____

	Compliance YES	NO
CAB DOOR HARDWARE		
The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish. The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel. All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.	_____	_____
DOOR LOCKS		
Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.	_____	_____
GRAB HANDLES		
The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of 14 gauge 304-stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.	_____	_____
REARVIEW MIRRORS		
Retrac Aerodynamic West Coast style single vision mirror heads model 613275 shall be provided and installed on each of the front cab doors. The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration. The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an 8.00 inch convex mirrors with a stainless steel back, model 980-4, installed below the flat glass to provide a wider field of vision. The flat mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The convex mirrors shall be manually adjustable. The flat mirror glass shall be heated for defrosting in severe cold weather conditions. The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.	_____	_____
REARVIEW MIRROR HEAT SWITCH		
The heat for the rearview mirrors shall be controlled through a rocker switch in the mirror control panel on the left side dash.	_____	_____
TRIM REAR WALL EXTERIOR		
The exterior rear wall of the cab shall include an overlay of 3003-H22 aluminum tread plate which shall be 0.07 inches thick. This overlay shall cover the entire rear wall of the cab.	_____	_____
CAB FENDER		
Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 nches wide made of vacuum formed ABS composite and an outer fenderette 5.00 inches wide made of 12 gauge polished aluminum.	_____	_____
MUD FLAPS FRONT		
The front wheel wells shall have mud flaps installed on them.	_____	_____
CAB EXTERIOR FRONT & SIDE EMBLEMS		
The cab shall include three (3) chassis emblems. There shall be one (1) installed on the front air intake grille and one (1) emblem with an integrated model nameplate installed on the exterior of the cab on the lower forward portion of the front driver and officer side doors.	_____	_____

	Compliance YES	NO
CAB EXTERIOR MODEL NAMEPLATE		
The cab shall include custom “Metro Star Advanced Protection System” nameplates integrated into the side emblem.	_____	_____
IGNITION		
A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.		
Each switch shall illuminate a green L.E.D. indicator light on the dash when the respective switch is placed in the “ON” position.		
The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.	_____	_____
BATTERY		
The single start electrical system shall include six (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.	_____	_____
BATTERY TRAY		
The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.		
The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.	_____	_____
BATTERY BOX COVER		
Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.	_____	_____
BATTERY CABLE		
The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed and encapsulated at the ends with heat shrink and sealant.	_____	_____
BATTERY JUMPER STUD		
The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.	_____	_____
ALTERNATOR		
The charging system shall include a 270 amp Leece Neville 12 volt alternator. The alternator shall include a self-excited integral regulator.	_____	_____
BATTERY CONDITIONER		
A Kussmaul 1200 Pump Plus battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position.	_____	_____
BATTERY CONDITIONER DISPLAY		
A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door.	_____	_____
AUXILIARY AIR COMPRESSOR		
A Kussmaul Pump 12V air compressor shall be supplied. The air compressor shall be		

	Compliance YES	NO
installed behind the driver's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.	_____	_____

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:
Kussmaul 1000 Charger - 3.5 Amps
Kussmaul 1200 Charger - 10 Amps
Kussmaul 35/10 Charger - 10 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps _____ _____

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well. _____ _____

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner. _____ _____

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover. _____ _____

HEADLIGHTS

The cab front shall include four (4) rectangular halogen headlamps with separate high and low beams mounted in bright chrome bezels. _____ _____

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch halogen amber arrow shaped turn signals which shall be installed outboard of the warning lights. The turn signal light heads shall be mounted in chrome plastic bezels and shall be located above the headlamps. _____ _____

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights. _____ _____

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) L.E.D. round side marker lights which shall be provided just behind the front cab radius corners. _____ _____

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) L.E.D. cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level. _____ _____

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights to 80% brilliance when the battery master switch is in the "On" position and the parking brake is released. _____ _____

GROUND LIGHTS

Each door shall include an L.E.D. NFPA compliant ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and L.E.D.s which shall be shock mounted

	Compliance YES	NO
for extended life. The ground lighting shall be activated by the opening of the respective door as well as being activated when the parking brake is set.	_____	_____

STEP LIGHTS

The middle step located at each door shall include a 4.00 inch round incandescent light which shall activate with the opening of the respective door.	_____	_____

UNDER BUMPER LIGHTS

There shall be two (2) 4.00 inch round incandescent NFPA compliant ground lights mounted under the bumper. The lights shall include a polycarbonate lens, a housing which is vibration welded, and a bulb which shall be shock mounted for extended life. The under bumper ground lighting shall be interlocked with the park brake and the marker light activation.	_____	_____

ENGINE COMPARTMENT LIGHT

There shall be an incandescent NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.	_____	_____

LIGHTBAR PROVISION

There shall be a junction box located on the left hand side of the roof with electrical connections for a light bar. The light bar shall be provided and installed by the body manufacturer.	_____	_____

LIGHTBAR SWITCH

The light bar shall be controlled by a rocker switch located on the switch panel. This switch shall be clearly labeled for identification.	_____	_____

FRONT SCENE LIGHTS

The front of the cab shall include one (1) Fire Research Spectra model, universal mount scene light installed on the brow of the cab.

The lamp head shall have eighty-four (84) ultra-bright white L.E.D.s, seventy-two (72) for flood lighting and twelve (12) to provide a spot light beam pattern. The lamp head shall draw 18 amps and generate 20,000 lumens. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The angle of elevation of the lamp head shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 6.00 inches high by 14.00 inches wide. The lamp head shall be powder coated white.	_____	_____

FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a rocker switch.	_____	_____

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.	_____	_____

INTERIOR OVERHEAD LIGHTS

The cab shall include a two-section, red and clear Weldon incandescent dome lamp located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 9.50 inches in length X 5.00 inches in width with a black colored bezel. The clear portion of each lamp shall be activated by opening the respective door and both the red and clear portions can be activated by individual switches on each lamp.

An additional incandescent three (3) light module with dual map lights shall be located over the engine tunnel which can be activated by individual switches on the lamp.	_____	_____

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

	Compliance YES	NO
The flashing red light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be located centered left to right for greatest visibility. The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.	_____	_____
MASTER WARNING SWITCH A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled "Master" for identification. The switch shall feature control over all devices wired through it. Any warning device switch left in the "ON" position shall automatically power up when the master switch is activated.	_____	_____
HEADLIGHT FLASHER An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right. Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied.	_____	_____
HEADLIGHT FLASHER SWITCH The flashing headlights shall be activated through a rocker switch on the switch panel. The rocker switch shall be clearly labeled for identification.	_____	_____
INBOARD FRONT WARNING LIGHTS The cab front fascia shall include two (2) Whelen 600 series Super L.E.D. front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.	_____	_____
INBOARD FRONT WARNING LIGHTS COLOR The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.	_____	_____
FRONT WARNING SWITCH The front warning lights shall be controlled through the master warning switch.	_____	_____
SIDE WARNING LIGHTS The cab sides shall include two (2) Whelen 600 series Super L.E.D. warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel.	_____	_____
SIDE WARNING LIGHTS COLOR The warning lights located on the side of the cab shall be red with clear lens.	_____	_____
SIDE WARNING LIGHTS LOCATION The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.	_____	_____
SIDE AND INTERSECTION WARNING SWITCH The side warning lights shall be controlled through the master warning switch.	_____	_____
INTERIOR DOOR OPEN WARNING LIGHTS The interior of each door shall include one (1) red 4.00 inch diameter Truck-Lite L.E.D. warning light located on the door panel. Each light shall activate with a flashing pattern when the door is in the open position to serve as a warning to oncoming traffic.	_____	_____

Compliance
YES NO

SIREN CONTROL HEAD

A Whelen 295SLSA1 electronic siren control head with hard wired microphone. The siren shall offer a selectable 100 or 200-watt output, radio broadcast, public address, and seventeen (17) Scan-Lock siren tones and hands free operation which shall allow the operator to turn the siren on and off from the steering wheel horn ring if a horn/siren selector switch option is also selected. The siren circuitry shall be placed behind the rocker switch panels under the electrical cover with a 30.00 inch loop for the OEM to route as desired. The siren shall be mounted in lower left portion of the center panel. _____ _____

HORN BUTTON SELECTOR SWITCH

A rocker switch shall be installed in the switch panel between the driver and officer to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements. _____ _____

AIR HORN ACTIVATION

The air horn activation shall be accomplished by the steering wheel horn button for the driver and a right hand side Linemaster model SP491-S81 foot switch for the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector. _____ _____

BACK-UP ALARM

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

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with L.E.D. lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

The instrument panel shall contain the following gauges:

One (1) electronic speedometer shall be included. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H.

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) two-movement gauge displaying primary system, and secondary system air volumes and integral LCD odometer/trip odometer shall be included on the lower portion of the LCD. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI). The air pressure scales shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate a low air pressure, as well as a message on the LCD screen. The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD shall display Transmission Temperature in degrees Fahrenheit on the upper portion of the LCD. The LCD screen shall also be capable of displaying certain diagnostic functions.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, fuel level, voltmeter, and an *indicator bar displaying Diesel Exhaust Fluid (DEF) L.E.D. bar shall be included. The scale on the engine oil pressure gauge shall read from 0 to 120 pounds per square inch (PSI). The engine oil pressure scale shall be linear to operate with an accuracy of 1 degree of the measured. A red indicator light in the gauge shall indicate a low engine oil pressure, as well as a message on the LCD screen. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (F). The coolant temperature scale shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate high coolant temperature, as well as a message on the LCD screen. The scale on the fuel level gauge shall read from empty to full as a percentage of fuel remaining. An amber indicator light shall indicate low fuel at 25% tank level. The scale on the voltmeter shall read from 10 to 16 volts with a red indication zone on the gauge showing critical levels of battery voltage. A red indicator light shall indicate high or low system

	Compliance YES	NO
voltage, as well as a message on the LCD screen. The scale on the DEF L.E.D. bar will consist of four (4) L.E.D.s displaying levels in increments of 25% of useable DEF in green. Upon decreasing levels, the indicator bar will change colors to notify the driver of decreasing levels of DEF and action will be required. An amber indicator light shall indicate low levels of DEF, as well as a message on the LCD screen and an audible alarm.		
The instrument panel shall include a light bar that contains the following L.E.D. indicator lights and produce the following audible alarms in applicable configurations:		
RED LAMPS		
Stop Engine-indicates critical engine fault Air Filter Restricted-indicates excessive engine air intake restriction Park Brake-indicates parking brake is set Seat Belt Indicator-indicates when a seat is occupied and corresponding seat belt remains unfastened Low Coolant-indicates engine coolant is required	_____	_____
AMBER LAMPS		
MIL-indicates an engine emission control system fault Check Engine-indicates engine fault Check Trans-indicates transmission fault High Transmission Temperature-indicates excessive transmission oil temperature ABS-indicates anti-lock brake system fault HEST-indicates a high exhaust system temperature Water in Fuel-indicates presence of water in fuel filter *DPF-indicates a restriction of the diesel particulate filter *Regen Inhibit-indicates regeneration has been postponed due to user interaction Range Inhibit-indicates a transmission operation is prevented and requested shift request may not occur. *SRS-indicates a problem in the supplemental restraint system Check Message-Turn Signal On Check Message-Door Ajar Check Message-Cab Ajar *Check Message-ESC Active *Check Message-DPF Regen Active Check Message-No Engine Data Check Message-No Transmission Data Check Message-No ABS Data Check Message-No Data All Communication With The Vehicle Systems Has Been Lost Check Message-Check Engine Oil Level Check Message-Check Washer Fluid Level Check Message-Check Power Steering Fluid Level Check Message-Low Transmission Fluid Level Check Message-Check Coolant Level	_____	_____
GREEN LAMPS Left and Right turn signal indicators *ATC-indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system High Idle-indicates engine high idle is active. Cruise Control-indicates cruise control is active OK to Pump-indicates the pump engage conditions have been met Pump Engaged-indicates the pump is currently in use Auxiliary Brake-indicates secondary braking device is active	_____	_____
BLUE LAMP High Beam Indicator	_____	_____
WHITE LAMP Wait to Start-indicates active engine air preheat cycle	_____	_____
AUDIBLE ALARMS FROM GAUGE PACKAGE High Trans Temp High or Low Voltage Check Engine Check Transmission Stop Engine Low Air Pressure Fuel Low Water in Fuel		

	Compliance YES	NO
*ESC		
High Coolant Temperature		
Low Engine Oil Pressure		
Low Coolant Level		
*Low DEF Level		
Air Filter Restricted		
Extended Left and Right Turn Remaining On		
Cab Ajar		
Door Ajar		
ABS System Fault		
Seatbelt Indicator	_____	_____

EXTERNAL AUDIBLE ALARM

Air Filter		
Cab Ajar		
Door Ajar		
Check Engine		
Stop Engine		
Low Air Pressure		
Low Engine Oil Pressure		
Water in Fuel		
*Low DEF		
ABS System Fault		
Seatbelt Indicator		
*Items marked with an asterisk are provided only in applicable configurations.	_____	_____

LCD MESSAGES

Transmission Temperature		
Battery Voltage		
Engine Hours		
Vehicle Speed		
Engine RPMs		
Fuel Level		
DEF Level		
Engine Oil Pressure		
Ammeter (If quipped)		
Auxiliary Ammeter (If quipped)		
Engine Coolant Temp		
Primary System Air Pressure		
Secondary System Air Pressure		
Turbo Boost Pressure		
Exhaust Temperature		
Engine Load		
Engine Torque		
Instant Fuel Economy		
Average Fuel Economy	_____	_____

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red L.E.D. backlighting.	_____	_____

RADIO

A Panasonic radio with weather band, AM/FM stereo receiver, compact disc player, with and (4) speakers shall be installed in the cab. The radio shall be installed above the officer position. The speakers shall be installed inside the cab with two (2) speakers recessed within the headliner of the front of the cab just behind the windshield and two (2) speakers on the upper rear wall of the cab.	_____	_____

AM/FM ANTENNA

A small antenna shall be located on the right hand side of the cab roof for AM/FM and weather band reception.	_____	_____

COMMUNICATION ANTENNA

An antenna base, for use with an NMO type antenna, shall be mounted on the right hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by manufacturer. The antenna base shall be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base design provides the most corrosion resistance and best power transfer

	Compliance YES	NO
available from a high temper all brass construction and gold plated contact design. The antenna base shall be provided by manufacturer.	_____	_____

COMMUNICATION ANTENNA CABLE ROUTING

The antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center rocker switch console.	_____	_____

AUXILIARY COMMUNICATION ANTENNA

An auxiliary antenna base, for use with an NMO type antenna, shall be installed on the cab. The antenna base shall be an Antenex model MABVT8 and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna shall be mounted on the left hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by manufacturer. The antenna base shall be provided by manufacturer.	_____	_____

AUXILIARY COMMUNICATION ANTENNA CABLE ROUTING

The auxiliary antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center rocker switch console.	_____	_____

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.	_____	_____

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.	_____	_____

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.	_____	_____

DIAGNOSTIC SOFTWARE OCCUPANT PROTECTION

Diagnostic software for the Spartan Advanced Protection System shall be available for free download from the Spartan Chassis website to Spartan authorized OEMs, dealers and service centers, as well as the vehicle owner.

The software has been validated to be compatible with the following RP1210 interface adapters:

- Dearborn Group DPA4 Plus
- Noregon Systems JPRO® DLA+
- Cummins INLINE5
- Cummins INLINE6
- NexIQ™ USB-Link™

The software and adapter utilize the SAE J1939-13 heavy duty nine (9) pin connector which is located below the driver's side dash to the left of the steering column.	_____	_____

WARRANTY

Summary of Warranty Terms:

The chassis manufacturer shall provide a limited parts and labor warranty to the original Purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first 36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the first end user.	_____	_____

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English.	_____	_____

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.	_____	_____

Compliance
YES NO

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:

(2) Digital copies of the Engine Owner's manual

(2) Digital copies of the Transmission Operator's manual

(2) Hard copies of the Engine Operation and Maintenance manual with CD _____ _____

ENGINE SERVICE MANUALS

There shall be two (2) printed hard copy sets of Cummins ISC/ISL engine service reference manuals which shall be provided with the chassis. _____ _____

TRANSMISSION SERVICE MANUALS

There shall be two (2) printed hard copy sets of Allison 3000 transmission service manuals included with the chassis. _____ _____

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams. _____ _____

HALE 1,250-GPM SINGLE STAGE PUMP

The fire pump shall be manufactured by Hale and shall comply with all applicable requirements of the latest edition of NFPA 1901 "Standard for Automotive Fire Apparatus" published by the National Fire Protection Association. _____ _____

PUMP WARRANTY

The pump shall be covered by the Hale Pro-Tech 5 year pump warranty against workmanship and materials. Both parts and labor shall be covered for the first 2 years and years 3-5 shall have parts only coverage. _____ _____

PUMP PERFORMANCE - 1,250 U.S. GPM.

The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,250 United States gallons per minute. The pump shall deliver the percentage of rated discharge pressures as indicated below:

- 100 percent of rated capacity at 150 pounds net pressure.
- 70 percent of rated capacity at 200 pounds net pressure.
- 50 percent of rated capacity at 250 pounds net pressure.
- 100 percent of rated capacity at 165 pounds net pressure. _____ _____

PUMP CONSTRUCTION

The pump shall be driven by a drive line from the truck transmission. The pump shall be free from objectionable pulsation and vibration under all normal operating conditions. The engine shall provide sufficient horsepower and revolutions per minute to allow the pump to meet or exceed its rated performance.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 500-PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by NFPA 1901.

The pump body and related parts shall be of fine grain alloy cast iron with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable.

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

The pump impeller shall be of hard, fine grain bronze with a mixed flow design; accurately machined, hand ground, and individually balanced. The vanes of the impeller intake eyes shall be hand ground and polished to a sharp edge, and shall be of sufficient size and

	Compliance YES	NO
design to provide ample reserve capacity utilizing minimum horsepower.		
The pump shaft shall be fabricated of heat-treated, electric furnace, corrosion resistant stainless steel, and shall be super finished under the shaft seal. The pump shaft must be sealed with double lip oil seal to keep road dirt and water out of gearbox.	_____	_____

GEARBOX

The gear box shall be completely manufactured and tested at the pump manufacturer's factory.

The pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine in both road and pump operating conditions. The gearbox shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and shall be a minimum of 2.75 inches in diameter, on both the input and the output drives shafts. The gearbox shall withstand the full torque of the engine in both road and pump operating conditions.

All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and the gear teeth shall be crown shaven, and hardened for smooth, quiet running, and a higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

The pump gear ratio shall be selected by the apparatus manufacturer to give the maximum performance with the engine and transmission selected.	_____	_____

MECHANICAL SEAL

The pump shaft shall be equipped with a single mechanical type seal on the suction (inboard) side of the pump. The mechanical seal shall be a minimum of two-inches in diameter and shall be spring loaded, maintenance free and self-adjusting.

The mechanical seal shall constructed of a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal.	_____	_____

SACRIFICIAL PUMP ANODES

To aid in protecting the pump from internal corrosion, three sacrificial anodes shall be provided and located one in the lower section of each side inlet and one on the discharge side of the pump.	_____	_____

FRC PUMP BOSS PRESSURE GOVERNOR SYSTEM

Fire Research Pump Boss pressure governor and monitoring display kit shall be installed. The kit shall include a control module, pressure sensor, and cables.

The following continuous displays shall be provided:

CHECK ENGINE and STOP ENGINE warning L.E.D.s
Engine RPM; shown with four daylight bright L.E.D. digits more than 1/2" high
Engine OIL PRESSURE; shown on an L.E.D. bar graph display in 10 psi increments
Engine TEMPERTURE; shown on an L.E.D. bar graph display in 10 degree increments
BATTERY VOLTAGE; shown on an L.E.D. bar graph display in 0.5 volt increments
PSI / RPM setting; shown on a dot matrix message display
PSI and RPM mode L.E.D.s
THROTTLE READY L.E.D.

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Engine RPM
Pump Overheat
High Transmission Temperature
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)

Compliance
YES NO

High Battery Voltage
Low Engine Oil Pressure
High Engine Coolant Temperature

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes.

A control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.

A throttle ready L.E.D. shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

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

HALE/CLASS 1 INTAKE RELIEF VALVE

A Hale/Class 1 intake relief/dump valve shall be provided on the intake side of the pump to relieve excess incoming pressure. The system shall be designed to self restore to a non-relieving position when excessive pressure is no longer present. The pressure adjustment range shall be from 75 psi to 250 psi. The relief system shall be adjustable with a common type box end wrench.

The surplus water shall discharge to the atmosphere at a location away from the pump operator's position. _____ _____

125 PSI INTAKE RELIEF VALVE PRE-SET PRESSURE

The intake relief valve shall be pre-set to 125 psi.

PUMP SHIFT MECHANISM - AIR/ELECTRIC

The pump shall be shifted from road to pump by means of a cab mounted air over electric pump shift switch. The switch shall have a built in positive locking mechanism to prevent accidental movement of the switch. The locking mechanism shall require the operator to manually lift up on the switch lever to disengage the lock.

The switch shall have three positions:

Position 1 = road position
Position 2 = neutral position
Position 3 = pump position

A green indicator light shall be provided in the driving compartment and shall be energized when the pump shift has been completed. This light shall be labeled "PUMP ENGAGED".

When the apparatus is equipped with an automatic transmission, a green indicator light shall be provided in the driver's compartment. It shall be energized when both the pump shift has been completed and the chassis transmission is in pump gear. This light shall be labeled "OK TO PUMP". _____ _____

MANUAL PUMP SHIFT OVERRIDE - REMOTE CABLE ACTUATION

A manual pump shift override shall be provided on the apparatus. The shift shall be remote cable actuated. The remote cable shall have a "T" handle control which shall be positioned just inside the pump compartment on the driver’s side. The control shall be easily accessed through the side panel hinged access door. The control shall be clearly labeled "MANUAL PUMP SHIFT". _____ _____

HALE MODEL ESP-PVG OIL LESS PRIMING SYSTEM

A Hale model ESP oil less priming system shall be provided with PVG panel mounted control valve. The priming pump shall be an electrically driven, positive displacement vane type conforming to requirements outlined in NFPA 1901. One priming control shall both open the priming valve and start the priming motor.

	Compliance YES	NO
The primer shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry and using 20 feet of appropriately sized hard suction hose with strainer. The system shall develop a vacuum of 22 inches at an altitude of up to 2,000 feet above sea level. The vacuum test shall be performed with a capped 20-foot length of hard suction hose, developing a vacuum of at least 20 inches with a drop not exceeding 10 inches in 5 minutes.		
The environmentally friendly priming system shall not require any priming lubricant.	_____	_____
PRIMER FUSE		
The primer shall be protected with a 250 amp fused link that is designed to protect the apparatus 12 volt electrical system if the primer motor malfunctions.	_____	_____
MANIFOLD DRAIN VALVE		
The pump shall have a manifold type drain valve assembly consisting of a stainless steel plunger in a bronze body with multiple ports. The control for the valve shall be on the left side along the bottom of the panel and above the side running board. The valve shall be a rotary type with a large easy to grip handle. The valve shall be labeled “PUMP DRAIN”.	_____	_____
ICI "LEVER LIFT" BLEEDER/DRAIN VALVES		
ICI 3/4" quarter turn ball type bleeder/drain valve shall be provided for each discharge and auxiliary intake. A hose shall be connected to the valve that will direct water below the apparatus and away from the immediate pump operator's location.		
The control handle shall be "lever lift" style for easy actuation. The handle for the control shall have a recessed area for the color coded identification label.	_____	_____
6" LEFT (DRIVER) SIDE MASTER INTAKE		
A 6" master intake shall be provided on the left (driver) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "DRIVER SIDE MASTER INTAKE". The label shall be color coded burgundy.	_____	_____
LEFT SIDE MASTER INTAKE CAP		
A 6" female NST long handle chrome cap shall be provided on the left side master intake.	_____	_____
6" RIGHT (PASSENGER) SIDE MASTER INTAKE		
A 6" master intake shall be provided on the right (passenger) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "PASSENGER SIDE MASTER INTAKE". The label shall be color coded burgundy.	_____	_____
RIGHT SIDE MASTER INTAKE CAP		
A 6" female NST long handle chrome cap shall be provided on the right side master intake.	_____	_____
INTAKE PIPING - STAINLESS STEEL		
The intake manifold piping shall be 304 stainless steel.	_____	_____
3/8" PUMP COOLING/BYPASS LINE		
A 3/8" pump cooling/bypass line shall be provided from the pump discharge manifold directly into the tank.		
This discharge shall implement a Class 1 model 38BV all brass ball type 1/4 turn valve with chrome plated handle control located on the pump panel.		
The valve control handle shall indicate the open/closed position of the valve.		

	Compliance YES	NO
The handle shall have a recessed area for mounting of the identification label which shall clearly state "PUMP COOLER".	_____	_____

TANK REFILL/RECIRCULATION DISCHARGE

A discharge shall be provided from the pump discharge manifold to allow pump cooling when necessary as well as to refill the booster tank.

The water tank fill gauge shall be directly in line with this discharge control.

The valve and piping shall be 2".

The refill/recirculation discharge shall be manually controlled on the pump panel.	_____	_____

STAINLESS STEEL PIPING

All piping for discharges shall be stainless steel using stainless steel fittings. Victaulic couplings shall be used in all front, rear and side discharges, deck pipes and crosslays for quick, simple removal of any pipe section or valve for maintenance.

High pressure flexible helix wire reinforced piping with a minimum burst pressure of 1200 psi may be used in some areas to minimize friction losses. All flexible piping couplings shall be high tensile strength stainless steel.

All piping shall be properly supported and braced to prevent movement of piping other than what is allowed by the Victaulic couplings to compensate for apparatus flexing.

Any discharge manifolds provided on the apparatus must be fabricated of a minimum of schedule 10 304 marine grade piping. Use of any welded light gauge (less than Schedule 10) manifolding or plumbing will not be acceptable.	_____	_____

STAINLESS STEEL PIPING WARRANTY

The stainless steel piping shall be warranted to be free from corrosion perforation for a period of 10 years following the delivery of the apparatus.	_____	_____

VENTED LUG CAPS AND PLUGS

All intake and discharge plugs and caps and plugs shall be vented lug type designed to relieve trapped pressure and help reduce possible operator injuries.	_____	_____

AKRON 8800 SERIES VALVES

All discharge and small diameter auxiliary intakes shall have heavy duty Akron 8800 brass self locking ball valves with stainless steel ball. This shall include the tank to pump and tank fill valve.	_____	_____

LEFT SIDE REARWARD AUXILIARY INTAKE

An auxiliary intake shall be provided on the left side of the pump compartment in the rearward position.

The intake shall have a 2 1/2" chrome plated female NST swivel connection with screen and a male NST chrome plated intake plug and chain.

A 3/4" bleeder/drain valve shall be provided.	_____	_____

RIGHT 2 1/2" DISCHARGE REAR OF INTAKE

One 2 1/2" discharge shall be provided on the right side of the apparatus to the rear of the master intake.

The discharge shall be equipped with a chrome discharge elbow that is cast as an integral part of the valve.

A 2 1/2" chrome plated NST cap and chain shall be provided.	_____	_____

RIGHT 3" DISCHARGE AHEAD OF INTAKE

One 3" discharge shall be provided on the right side of the apparatus ahead of the master intake.

	Compliance YES	NO
The valve shall be manually controlled on the pump panel. The control shall have an integrated slow closing mechanism to comply with NFPA 1901.		
The discharge shall extend straight out of the apparatus with no type of elbow.		
A Kochek model SKE5T3R 3" FNST x 5" locking swivel Storz elbow adapter with a model ZS36S525 5" locking Storz x 2 1/2" MNST reducer cap with a model ZCP2552 cap and chain shall be provided.	_____	_____

LEFT 2 1/2" DISCHARGE AHEAD OF INTAKE

One 2 1/2" discharge shall be provided on the left side of the apparatus ahead of the master intake.		
The valve shall be manually controlled on the pump panel.		
The valve shall be equipped with a chrome discharge elbow that is cast as an integral part of the valve.		
A 2 1/2" chrome plated NST cap and chain shall be provided.	_____	_____

LEFT REAR 2 1/2" DISCHARGE

One 2 1/2" discharge shall be provided on the left rear of the apparatus.		
The valve shall be manually controlled on the pump panel.		
A chrome discharge elbow shall be provided.		
The discharge shall be used as a pre-connected line and shall not require any cap or chain.	_____	_____

1 3/4" MID MOUNT CROSSLAY PRECONNECTS

Two 1 3/4" pre-connected crosslays shall be provided and located in front of the top mounted pump panel, stacked one above the other.		
Access for re-loading the fire hose shall be from the lower front area of the walkway area.		
The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2" piping or high pressure hose incorporating a 2" valve with the control on the top mount pump operator's panel.	_____	_____

 # 1 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 1 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.	_____	_____

 # 2 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 2 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.		
There shall be two (2) 2" swivel elbows with 1 1/2" Male NST hose thread connections provided on the 1 3/4" crosslay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.	_____	_____

1 3/4" CROSSLAY DRAIN VALVES - AUTOMATIC

3/4" automatic drain valves shall be provided for all 1 3/4" crosslays. The valves shall have an all brass body with heavy duty neoprene seal. The valves shall be normally open and shall close at 6 psi using an all brass check assembly with stainless steel spring.	_____	_____

CROSSLAY COMPARTMENT ENDS - BLACK WEBBING

The crosslay compartment shall be enclosed on each end using a heavy duty webbing to prevent hose from accidently unloading. The webbing shall be black.		
A yellow nozzle strap shall be provided for each crosslay. The strap shall be designed		

	Compliance YES	NO
to loop through the nozzle handle and secured to the apparatus to keep nozzle from coming out of the crosslay compartment without manually disconnecting the nozzle strap.	_____	_____

3" MONITOR DISCHARGE

A 3" monitor discharge shall be provided above the pump compartment. The discharge piping shall extend above the pump compartment a sufficient distance to allow use of the deck gun. _____ _____

AKRON APOLLO HI-RISER PORTABLE/TRUCK MOUNT MONITOR

One (1) Akron High-Riser monitor shall be provided and mounted on the monitor discharge. The monitor shall elevate 24" above the base.

The monitor assembly shall have hand wheel elevation control for 90 degrees above to 15 degrees below horizontal with an elevation stop at 35 degrees above horizontal. The monitor shall rotate 360 degrees continuous in the 'truck mount' mode while flowing up to 1,250 gpm and 180 degrees in the portable mode while flowing up to 800 gpm. The horizontal travel shall have a locking mechanism and stops to prevent accidental over rotation in the portable mode.

The monitor shall have a full 3" waterway with vanes in each elbow. A 3" direct connect base shall be provided for use on the monitor discharge pipe. A protected pressure gauge shall be installed on the monitor assembly. _____ _____

AKRON 2499 STACKED TIPS

A set of Akron model 2499 quad stacked tips shall be provided. The tip orifices shall be 1 3/8", 1 1/2", 1 3/4", and 2". The tips shall be lightweight Pyrolite. _____ _____

AKRON 3488 DISCHARGE PIPE

One (1) Akron model 3488 Pyrolite discharge pipe/stream straightener shall be provided for use on the monitor. The pipe shall have rigid female NST x male NST fittings. _____ _____

AKRON APOLLO DUAL 2 1/2" BASE

A dual, 2-1/2" inlet female NST portable base with folding legs shall be provided for monitor use off of the apparatus. Hardened steel ground spikes shall be provided at the ends of the folding legs. A safety chain shall also be provided to secure the monitor while using the portable base. _____ _____

AKRON 1757 TURBOMASTER MASTER STREAM NOZZLE

One (1) Akron Turbomaster model 1757 master stream nozzle shall be provided for the monitor.

The nozzle shall be a combination fog and straight stream constant gallonage nozzle with four flow settings of 350, 500, 750, and 1000 gallons per minute. The nozzle shall have variable pattern selection from straight stream to wide fog with continuous detents for positive positioning.

The nozzle shall be constructed of lightweight Pyrolite with spinning teeth, large rubber like pattern control ring and 2 1/2" female National Standard Thread swivel connection. _____ _____

1 3/4" FRONT BUMPER DISCHARGE(S)

There shall be one (1) 1 3/4" discharge(s) provided on the front of the apparatus. _____ _____

FRONT BUMPER EXTENSION

The front bumper shall be supplied on the custom chassis. _____ _____

BUMPER EXTENSION APRON

An aluminum treadbrite apron/gravel shield shall be provided in the area between the extended bumper and the chassis cab. _____ _____

BUMPER EXTENSION HOSE WELL WITH COVER

A hose well shall be provided in the bumper extension. The hose well shall be designed to fit between the front bumper frame rail extensions shall have a "raised lip" to help prevent water entry into the compartment. The hose well shall be maximum

	Compliance YES	NO
size using all useable space between the frame rails. An aluminum treadbrite hinged cover shall be provided to enclose the hose well.		
The floor of the hose well shall be covered with Turtle Tile.	_____	_____
HOSE WELL COVER NOTCH		
A hose well cover shall be notched to allow for the hose to be pre-connected to the discharge located on the front bumper extension.	_____	_____
FRONT HOSE WELL CAPACITY		
The front bumper hose well shall have the capacity of 100 feet of 1 ¾" fire hose.	_____	_____
FRONT DISCHARGE HOSE CONNECTION - CHROME SWIVEL		
The hose connection for the discharge shall be located immediately adjacent to the hose well. A **chrome plated or polished stainless steel** swivel shall be provided. The lid for the hose well shall be notched to allow for the hose to be pre-connected.	_____	_____
FRONT BUMPER DISCHARGE HOSE CONNECTION - DRIVER'S SIDE		
The hose connection for the front bumper discharge shall be on the driver's side.	_____	_____
HANNAY ELECTRIC REWIND BOOSTER REEL		
A Hannay 12 volt electric rewind booster reel shall be provided and mounted on the apparatus.		
The reel shall be mounted in the upper portion of the rear compartment to allow use of the transverse compartment.	_____	_____
REEL FINISH - SILVER-GRAY		
The reel(s) shall be finish painted silver-gray on the entire surface of the reel, discs and mounting assembly.		
A stainless steel roller assembly shall be provided for guiding the booster hose.		
A rewind button shall be provided adjacent to the reel. The button shall be able to be activated while standing on the ground and shall be a heavy duty momentary push type button.		
A manual rewind crank shall be provided in case of power failure. The removable crank handle shall be mounted inside of an apparatus body compartment.	_____	_____
200' 1" BOOSTER HOSE 800 PSI		
A single 200 foot length of 1" booster hose shall be provided for the reel. The hose shall have a 800 psi rating and shall be coupled with chrome plated bar-way couplings.	_____	_____
FIRE DEPARTMENT PROVIDED BOOSTER REEL NOZZLE		
The Fire Department shall provide the nozzle for the booster reel.	_____	_____
TOP MOUNTED SELF CONTAINED MODULAR PUMP COMPARTMENT		
A self contained modular pump compartment, designed for the integral mounting of a midship pump with top mounted pump operator's panel, shall be provided.		
The modular design of the pump compartment shall allow the compartment to be fully independent of the apparatus body or cab. A minimum .75-inch gap shall be provided between the pump compartment and the apparatus body creating a flexible joint between the pump compartment assembly and the apparatus body. The modular design of the pump compartment shall allow the entire pump system, including the pump itself, to be removed from the apparatus in a one-piece, modular section, while leaving the body intact and without having to cut any sheet metal or welds.	_____	_____
STAINLESS STEEL PUMP COMPARTMENT CONSTRUCTION		
The entire pump compartment shall be constructed using only 304 marine grade stainless steel fabricated sheeting with a #4 annealed and polished finish on all exterior surfaces. The pump compartment shall not require any finish painting. Due to the		

	Compliance YES	NO
extreme twisting and flexing that all fire apparatus are subjected to, aluminum shall not be used in any portion of the pump compartment structural support. The use of any type of enclosed tubing that requires the use of self-tapping or any other type of machine screw shall not be acceptable.	_____	_____

TOP MOUNT PUMP OPERATOR'S WALKWAY

A 22" wide (front to rear) pump operator's walkway shall be provided between the pump compartment and the chassis cab. A 1" minimum space shall be provided between the walkway edges, the pump compartment and rear wall of the chassis.	_____	_____

TOP MOUNT WALKWAY LIGHTING – L.E.D.

Two teardrop style L.E.D. lights shall be provided to illuminate the top mount walkway area.	_____	_____

LIGHTED WALKWAY COMPARTMENT - OFFICER'S SIDE

A compartment shall be incorporated into the walkway assembly on the officer's side of the apparatus. The compartment shall have a minimum depth of 30", and shall be a minimum of 22" wide x 18" high in the rear section, tapering to no less than 6" high in the forward section. The entire step and running board assembly shall be horizontally hinged to allow complete access to the compartment. A pneumatic spring hold-open device shall be provided to hold the integrated step/door assembly open. The compartment shall be provided with a Weldon #2025 enclosed light fixture that will be controlled by the pump panel light switch.	_____	_____

LIGHTED WALKWAY COMPARTMENT - DRIVER'S SIDE

A compartment shall be incorporated into the walkway assembly on the driver's side of the apparatus. The compartment shall have a minimum depth of 30", and shall be a minimum of 22" wide x 18" high in the rear section, tapering to no less than 6" high in the forward section. The entire step and running board assembly shall be horizontally hinged to allow complete access to the compartment. A pneumatic spring hold-open device shall be provided to hold the integrated step/door assembly open. The compartment shall be provided with a Weldon #2025 enclosed light fixture that will be controlled by the pump panel light switch.	_____	_____

TOP MOUNT PUMP OPERATOR'S WALKWAY MATERIAL

The entire pump operator's walkway assembly shall be constructed of NFPA compliant slip resistant aluminum treadbrite on all stepping surfaces.	_____	_____

PUMP COMPARTMENT RUNNING BOARDS

The pump compartment side running boards shall be constructed of NFPA compliant slip resistant aluminum treadbrite.	_____	_____

PUMP COMPARTMENT SIDE ACCESS DOORS - TOP MOUNT

A brushed stainless steel hinged access door shall be provided on each side of the pump compartment. The doors shall have pneumatic hold open devices and push button type flush latches. The doors shall be a minimum of 30" wide x 20" high.	_____	_____

TOP MOUNT BRUSHED STAINLESS STEEL PUMP PANEL

A rear facing top mounted pump panel shall be provided to allow simple, efficient operation of all pump functions necessary during normal fire ground operations.

A dual level inclined pump panel shall be provided for convenient user friendly layout of the panel to simplify the operation of the apparatus. Both levels of the panel shall be sloped to provide an angled view of the panel so that the operator may read all identification labels easily.

All controls for the pump shall be identified using permanently engraved identification labels properly secured to the panel. All discharge and intake identification labels shall be color coded to NFPA 1901 recommendations with labels at the control, intake/discharge location and drain port location.

The front incline panel shall be constructed of brushed stainless steel and shall begin at the lower edge of the front panel just behind the control levers and continue back to the area which the second incline level begins.

	Compliance YES	NO
The rear incline panel shall be constructed of brushed stainless steel and shall begin just above the pressure gauge mounting area and continue up to the top of the pump compartment. The panel shall have a full width stainless steel hinge at the bottom to allow the panel to hinge forward for access to the back of the panel. A latch shall be provided on each end to secure the panel in the closed position. A full pump panel width brushed stainless steel light shield shall be provided at the top of the gauge panel.	_____	_____

SIDE INTAKE/DISCHARGE PANELS - TOP MOUNT

The side panels of the pump compartment shall be constructed of brushed stainless steel. The side panels shall be easily removable and held into place using stainless steel or chrome plated flush mounted latches.		
Panels that are permanently attached to the pump compartment or require removal of mechanical fasteners are not acceptable.	_____	_____

TOP MOUNT PUMP PANEL LIGHTS - L.E.D.

The top mount pump panel shall be illuminated using an ILI track type L.E.D. light assembly. The light shall be constructed of an unbreakable type clear poly flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.	_____	_____

SIDE DISCHARGE/INTAKE PANEL LIGHTS - L.E.D.

The right and left side discharge and intake panels shall be illuminated using an ILI track type L.E.D. light assembly on each side.		
The lights shall be constructed of an unbreakable type clear poly flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.	_____	_____

INNOVATIVE CONTROLS TOP MOUNT CONTROL HANDLES

All top mount valve control handles shall be Innovative Controls 'locking' lever type with "T" handles. The "T" handles shall be chrome plated zinc and shall have a recessed area for the color coded identification label.	_____	_____

STAINLESS STEEL VALVE CONTROL LINKAGES

All manual valve controls shall have control rod linkages constructed of 1/2" stainless steel rod or pipe and shall implement heavy ball swivel joints and clevises for smooth valve operation.		
Plain, painted or coated control rods are not acceptable. **(No Exception).**	_____	_____

NO-SHOK MASTER PUMP DISCHARGE PRESSURE GAUGE

A No-Shok 4" diameter master pressure gauge shall be provided to indicate the main pump discharge pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.	_____	_____

NO-SHOK MASTER PUMP INTAKE PRESSURE GAUGE

A No-Shok 4" diameter master pressure gauge shall be provided to indicate the pump intake pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.	_____	_____

STAINLESS STEEL MASTER GAUGE BEZELS

The master intake and discharge gauges shall have bright finish stainless steel bezels.	_____	_____

MASTER INTAKE/DISCHARGE PRESSURE GAUGE - WHITE FACE

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings.	_____	_____

MASTER INTAKE/DISCHARGE GAUGE LABELING

The master intake gauge shall be clearly labeled "PUMP INTAKE" and shall be located

	Compliance YES	NO
to the left of the master discharge pressure gauge. (Burgundy label).		
The master discharge gauge shall be clearly labeled "PUMP DISCHARGE" and shall be located to the right of the intake pressure gauge. (Black with silver lettering).	_____	_____

MASTER INTAKE/DISCHARGE GAUGE WARRANTY

The master intake/discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty.		
The gauges shall also be warranted for 4 years for defects in materials and workmanship, including fluid leakage. The warranty will not cover labor costs and/or transportation costs.	_____	_____

PRESSURE/VACUUM TEST PLUGS

Underwriter's test plug adapters shall be provided for connection of pump test gauges.	_____	_____

INNOVATIVE CONTROLS SL PLUS TANK GAUGE - PUMP PANEL

An Innovative Controls model SL Plus tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view ultra-bright L.E.D. display showing the level of the booster tank.	_____	_____

INNOVATIVE CONTROLS SL PLUS TANK GAUGE - REAR

An Innovative Controls model SL Plus tank gauge shall be provided on the rear of the apparatus. The gauge shall feature a 180 degree highly visible wide view ultra-bright L.E.D. display showing the level of the booster tank.	_____	_____

NO-SHOK DISCHARGE PRESSURE GAUGES

Unless otherwise specified, each 1 1/2" or larger discharge shall have a No-Shok pressure gauge. The gauge shall be glycerin filled (-40F to +150F), read from 0 - 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.		
The individual discharge pressure gauges shall have a 2 3/4" diameter.		
The discharge pressure gauges shall have chrome finish color coded trim bezels. The bezels shall have recessed surfaces to allow for the color code and identification labels.		
The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings.		
The pressure gauge shall be directly in line with the discharge control handle for the discharge that they provide pressure readout for. **For ease of operation, this requirement must be strictly adhered to. There shall be no exception to this requirement.**		
The gauges shall be clearly labeled with permanent color coded labels.		
The discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty. The gauge shall also be warranted for 4 years for defects in materials and workmanship including fluid leakage. Warranty will not cover labor costs and/or transportation costs.	_____	_____

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment.		
Where required, the verbiage label bezel assemblies shall include a chrome plated panel mount bezel with durable easy to read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. The UV resistant polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.	_____	_____

	Compliance YES	NO

BOOSTER TANK- UNITED PLASTIC FABRICATING, INC.

The tank shall have a LIFETIME warranty provided by United Plastic Fabricating, Inc.

The tank exterior shell shall be constructed of minimum 1/2" thick PT3 polypropylene sheet stock. This material shall be non-corrosive stress relieved thermoplastic which is U.V. stabilized for maximum protection. The booster tank shall be of a specific configuration and is designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The tank construction shall include Poly Pro Seal technology. A sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise.

The transverse swash partitions shall be manufactured of 3/8" PT3 polypropylene material. The longitudinal swash partitions shall be constructed of 3/8" PT3 polypropylene and extend through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and are welded to each other as well as to the walls of the tank. All partition spacing shall be compliant with NFPA 1091 recommendations.

The top of the booster tank shall be fitted with removable lifting eyes.

The tank cradle assembly shall be designed to provide support to the tank. The assembly shall be approved by the manufacturer of the tank. _____ _____

BOOSTER TANK CAPACITY 1,000 GALLONS

The poly booster tank shall have a capacity of 1,000 U.S. gallons. _____ _____

BOOSTER TANK FILL TOWER - LEFT SIDE FRONT

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum of **10" x 10"** outer dimension. The tower shall be located in the left front corner of the hose bed. The tower shall have a 1/4" thick removable polypropylene screen and polypropylene hinged type cover. _____ _____

4" TANK OVERFLOW

A 4" diameter tank vent/overflow shall be provided and integrated into the tank. The piping shall be a minimum of schedule 40 polypropylene designed to run through the tank and discharge behind the rear wheels. _____ _____

1" TANK SUMP DRAIN

A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel piping with a 1" valve. The control for the valve shall be remote to the driver's side of the apparatus just under and behind the side rub rail. The drain control handle shall be labeled "TANK DRAIN". _____ _____

3" TANK SUMP CLEAN OUT PLUG

A 3" tank sump clean out plug drain shall be provided in the bottom of the tank sump. _____ _____

2 1/2" REAR TANK FILL(S)

One 2 1/2" rear tank fills shall be provided on the rear of the apparatus. The fill connection shall be located on the right side of the rear face. The valve shall be located on the inside of the rear compartment with the valve control and connection located on the exterior. The fill valve shall be connected to the tank with 2-1/2" stainless steel threaded pipe, with the hose connection on the exterior of the apparatus supplied with a 2 1/2" FNST swivel connection, 30-degree elbow with a chrome plated plug and chain. _____ _____

REAR FILL LOCATION - RIGHT (PASSENGER) SIDE

The rear fill shall be located on the right (passenger) side.

An Akron 8825 series valve shall be utilized on the tank fill(s). _____ _____

Compliance
YES NO

3" TANK TO PUMP

A 3" tank to pump line and valve shall be provided between the tank and the pump.

The tank to pump valve shall be manually controlled on the pump panel. _____ _____

TANK TO PUMP CHECK VALVE

A check valve assembly shall be provided on the pump. The valve shall prevent unintentional back filling of the tank through the tank to pump line. Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose. _____ _____

TANK CRADLE SUB-STRUCTURE - HOT DIPPED GALVANIZED

The tank cradle substructure shall be constructed of high strength structural steel. The tank cradle substructure shall be designed to provide support to the booster tank. The design of the cradle shall be approved by the tank manufacturer.

The entire tank cradle substructure shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that it may be easily removed from the chassis for repair, replacement or mounting to a new chassis.

After complete assembly of the tank cradle substructure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub-frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable. _____ _____

REAR SUPPORT STRUCTURE - HOT DIPPED GALVANIZED

The apparatus body substructure shall be constructed of high strength structural steel.

The substructure shall be designed to provide integral support of the apparatus body, rear step, and the tank mounting cradle system. The entire sub-frame shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that the apparatus body may be easily removed from the chassis for repair, replacement or mounting to a new chassis.

No holes shall be drilled into the top or bottom flange of the chassis frame rails. The substructure shall be designed to allow for a 22"- 24" side running board/rear step height when the apparatus is on level ground. All fasteners used to secure the substructure to the chassis frame rails shall be hardened steel with locking type nuts.

After complete assembly of the tank cradle substructure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable. _____ _____

20 YEAR TANK CRADLE STRUCTURAL WARRANTY

The tank cradle shall have a 20 year structural warranty. **NO EXCEPTION**. _____ _____

20 YEAR TANK CRADLE CORROSION WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer.
NO EXCEPTION. _____ _____

20 YEAR REAR STRUCTURAL SUPPORT WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. **NO EXCEPTION**. _____ _____

	Compliance YES	NO
20 YEAR REAR STRUCTURAL SUPPORT CORROSION WARRANTY		
The rear structural support shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. **NO EXCEPTION.**	_____	_____
***HYPER-FLEX* BODY MOUNTING**		
The body module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex'"* vibration and shock isolators using a forward mounting system. Flexible neoprene pads, or U-springs especially developed for the expected weight and torsional flexing of the apparatus body, shall be incorporated into the system to eliminate chassis frame rail flex from transmitting harmful loads and twisting onto the body.	_____	_____
100" BODY WIDTH		
The apparatus body shall be 100" wide from side to side measuring from the rub rail mounting surface.	_____	_____
APPARATUS BODY MATERIAL		
The entire apparatus body shall be constructed of 304 marine grade stainless steel with a #4 annealed and polished finish. The interior of the apparatus body shall not require any finish painting. The compartment interiors must be a #4 finish. Mill finish or DA sanded finish will not be acceptable.	_____	_____
APPARATUS BODY CONSTRUCTION		
The entire apparatus body shall be formed by sheering and bending the sheet metal. Metal tubular structures or extrusions shall not be used in the construction of the apparatus body. All edges of the sheared metal shall be sanded to remove any sharp shearing edges prior to bending the metal. After sheering and bending, the body shall be assembled on a jig table that is designed to hold all parts securely in place to insure an accurately built apparatus body.	_____	_____
APPARATUS BODY ASSEMBLY METHOD		
The entire apparatus body shall be assembled using only bolted type construction. All apparatus body parts shall be able to be unbolted without the need to cut welds, etc. No exceptions to this requirement as all apparatus manufacturers have the capability to manufacture apparatus bodies in this manner.	_____	_____
COMPARTMENT FLOORS		
All compartment floors shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface. A drain port shall be provided in each rear corner of the compartment to allow any water that may collect on the floor to drain out. The drain ports shall be designed to prevent road spray from entering the compartment. The front edge shall consist of a minimum of two bends to provide additional strength in the compartment floor and shall then form the lower door jamb. All compartment floors shall be sweep out design. This shall include the lower side compartments, any compartments above the wheel well, any transverse compartments, and the rear face compartment(s). Any exception to this requirement will cause immediate rejection of bid.	_____	_____
COMPARTMENT WEIGHT RATING		
Each compartment shall be designed to carry 1,000 lbs. of equipment distributed throughout the compartment.	_____	_____
INTERIOR COMPARTMENT SURFACES		
All visible interior compartment surfaces shall be 304 marine grade stainless steel with a # 4 annealed and polished finish. Surfaces that are painted or coated in any manner, raw material or any surface with any type sanded finish are not acceptable.	_____	_____
FRONT COMPARTMENT CORNERS		
The apparatus body front compartment corners and vertical faces on both sides shall		

	Compliance YES	NO
be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be one piece construction from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.		
The # 4 finish corner shall wrap around the side of the apparatus body and form the front compartment door jamb providing front corner protection.	_____	_____

REAR COMPARTMENT CORNERS - BRUSHED

The apparatus body rear compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be one piece construction from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.		
The # 4 finish corner shall wrap around the side of the apparatus body and form the rear compartment door jamb providing front corner protection.	_____	_____

COMPARTMENT TOPS/CEILINGS

The apparatus body compartment tops shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface.	_____	_____

COMPARTMENT TOP OVERLAY

The compartment top shall be overlaid with .125" NFPA aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus body nor shall the bottom side of the treadbrite be visible when looking into the compartment.	_____	_____

PAINTED FENDER WELLS

The left and right side rear fender wells shall be constructed of ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi. The fender wells shall be radius cut and shall have a full circular inner liner to prevent rust pockets and for ease of cleaning. A 1" gap shall be provided on the bottom of each side of the circular liner to allow drainage of water and for easy cleanout. Sufficient clearance shall be provided for tire chains. Before the booster tank is installed, the fender wells shall be thoroughly cleaned and all seams sealed to prevent corrosion in the fender well area.		
The outer surface of the fender well shall be finished painted. This surface shall not be overlaid with aluminum treadbrite or overlaid with a painted panel that is bolted on after the painting of the apparatus body.	_____	_____

PAINTED FENDER WELLS

The fender wells shall be finish painted the primary exterior color of the apparatus.		
To prevent potential corrosion points, aluminum treadbrite or bolted on overlapping panels shall not be implemented in the construction of the apparatus body.	_____	_____

UPPER DOOR POSTS - PAINTED

The upper door post to the front and rear of the compartment door above the rear wheels shall be constructed of ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi.		
The outer surface of these door posts shall be finished painted.	_____	_____

REMOVABLE INNER FENDER LINER

The fender wells shall be radius cut and shall have a circular inner liner to prevent rust pockets and for ease of cleaning. The inner liner shall be constructed of high impact polypropylene material and shall be fully removable for chassis suspension access.	_____	_____

REMOVABLE INNER FENDER LINER - NO EXCEPTION

To prevent the buildup of potential corrosive materials in the fender well area, there shall be no exception to inner fender liner.	_____	_____

Compliance
YES NO

STAINLESS STEEL FENDERETTE

The fender wells shall be trimmed with a polished stainless steel fenderette. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement. A black rubber fender welting shall be provided between the fenderette and the inner liner surface. The fenderettes shall protrude from the apparatus body a maximum of 1". _____ _____

REPLACEABLE FENDERETTE

The stainless steel fenderette shall be secured to the apparatus body with stainless steel fasteners and shall be easily removable for replacement.

Fenderettes that are welded to the apparatus body are not acceptable. _____ _____

OUTER BODY SIDES

The outer left and right side body panels above the compartment tops shall be constructed of 304 2B marine grade stainless steel with a # 4 brushed finish and shall not require any finish paint. _____ _____

COMPARTMENT VENTILATION

Each compartment shall have a removable metal ventilation plate to allow for air movement in the compartment. A cleanable filter material shall be provided behind the plate.

Plastic cover plates will not be acceptable. _____ _____

COMPARTMENT DOORS

For compartments requiring flush hinged doors:

All side compartment doors shall be double paneled and designed to fit flush with the side of the apparatus body. Lap style or beveled style doors shall not be acceptable.

The exterior panel of the door shall be pan formed, shall be a minimum of 1 5/8" thick, and shall be constructed of minimum 1/8" smooth aluminum 5052alloy. The outer pan shall be double flanged, in and down, to provide full perimeter support for the interior panel.

All compartments that have double doors shall have the interior panel offset on the interior of the second door to allow the first door to shut tightly against the offset portion. Any compartments with double doors shall not require a center door jamb thereby allowing full, unobstructed access to the compartment.

All compartment doors must be fitted on the apparatus body prior to painting, removed and fully disassembled for painting. All hinges, latches, handles and inner liners must be removed for the paint process to insure proper paint coverage. _____ _____

INNER DOOR PANEL - ALUMINUM TREADBRITE

The interior panel of the door shall be constructed of aluminum treadbrite and shall be removable for access to the interior of the door and to allow mounting equipment to interior door panel. Interior door panels that are permanently welded or glued into place shall not be acceptable. _____ _____

COMPARTMENT DOOR HINGES

All compartment doors shall have full length polished stainless steel hinge. The hinge shall have a minimum pin diameter of 1/4". The hinge shall be fastened to the door and to the apparatus body with stainless steel fasteners.

Fasteners used to secure the hinge shall not be visible on the exterior of the apparatus body. A dielectric isolation barrier shall be provided between the hinge and the door as well as between the hinge and the apparatus body. The hinge must be removed from both the apparatus body and compartment door during the paint process. _____ _____

COMPARTMENT DOOR LATCHES

All compartment door latches shall be a single point center latch with double catch. The latch shall be a 'slam' type latch. Use of pin type latches shall not be acceptable. The entire latch mechanism must be located inside the double pan door to prevent any possible fouling or damage to the latch in the event equipment stored in the compartment

	Compliance YES	NO
shifts. The latches shall be activated by a non-directional stainless steel D ring handles. The handle shall be bent slightly to allow for easy grasp of the handle.	_____	_____

DOUBLE DOOR SECOND DOOR LATCH - CABLE OPERATED

A latch shall be provided on the interior of the second door on all double door compartments. A pull cable shall be provided on the interior of the second door of all high compartment doors to activate the latch with a gloved hand.	_____	_____

VERTICALLY HINGED COMPARTMENT DOOR RETENTION DEVICE

Hansen 5EZ enclosed stainless steel door retention devices shall be provided on all vertically hinged compartment doors. The device shall be bolted to the door and to the apparatus with stainless steel fasteners. These fasteners shall not visible on the exterior of the apparatus body. The adjustable spring mechanism shall hold the door firm, but not rigid, in either the open or closed position. The use of chain, cable or devices that are required to be manually unlatched to close shall not be acceptable.	_____	_____

HORIZONTALLY HINGED COMPARTMENT DOOR RETENTION DEVICE

All horizontally hinged doors shall be provided with pneumatic lift devices of adequate rating to hold the door in the open position. The device shall be bolted to the apparatus body and the interior door liner and shall be provided with 5 position adjustment brackets to allow the open height of the door to be easily adjusted.	_____	_____

COMPARTMENT DOOR SOUND DEADENING

After the compartment door has been painted, polystyrene insulation panels shall be placed on the interior of the door between the outer skin and the removable inner liner. These panels shall provide for a more solid sounding door when closing the door. Use of sprayed on material for sound deadening will not be permitted.	_____	_____

COMPARTMENT DOOR WEATHER STRIPPING

All compartment doors shall be weather stripped the entire perimeter of the compartment door opening. All weather stripping shall be heavy-duty automotive hollow core type. Sponge type materials shall not be acceptable. All weather stripping must be applied to a metal backing. Clip-on type weather stripping shall not be used on the perimeter of the compartment. All double door compartments shall have a metal crimp type weather strip applied to the offset interior panel.	_____	_____

HINGED COMPARTMENT DOOR PAINTING PROCEDURE

All hinged compartment doors that are to be finish painted must be fitted on the apparatus body prior to painting, removed and fully disassembled for painting. All hinges, latches, handles and inner liners must be removed for the paint process to insure proper paint coverage.	_____	_____

ROM ROLL UP COMPARTMENT DOORS

For all compartments requiring roll up doors, Robinson (ROM) roll up doors shall be installed.

The doors shall be constructed of aluminum extrusion slats and shall be fitted with a flexible, watertight seal between the slats at pivoting joints. Each slat shall be individually removable for replacement if damaged. The end caps and rollers shall be manufactured of type-6 nylon. The doors shall have a pre-tension operator in a sealed alloy drum that shall be positioned in the upper portion of the compartment providing maximum clearance and head room in the upper portion of the compartment.

Each door shall have a full door width lift bar latching handle which shall be spring loaded with two (2) surface mounted latch points, mounted one (1) on each end. The door shall be reinforced and the latch point with a "ledge" surface above the lift bar designed to provide a "push" surface when closing.

A drip rail shall be provided above all doors.	_____	_____

STAINLESS STEEL COATED FASTENERS

All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through a dissimilar metal panel shall be Magna-Gard, or equal, coated to help prevent metal reaction and corrosion.

	Compliance YES	NO
As the Magna-Gard, or equal, coating is a "baked on" type coating providing for excellent adhesion to the fastener, spray on type coatings may be used in conjunction with the Magna-Gard, or equal, but not in place of it. Because dissimilar metal corrosion is a common occurrence on all apparatus and the Magna-Gard (or similar "baked on" coatings) fasteners are commercially available to all manufacturers and is not a proprietary product, there shall be no exception to this requirement.	_____	_____
DRIVER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 67" high x 35.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth. The compartment shall have a single vertically hinged door.	_____	_____
DRIVER'S SIDE ABOVE WHEEL COMPARTMENT A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be 37" high x 63.75" wide x 14" usable depth. The compartment shall have a horizontally hinged, raise up door.	_____	_____
DRIVER'S SIDE COMPARTMENT BEHIND REAR WHEELS A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth The compartment shall have double vertically hinged doors.	_____	_____
PASSENGER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 67" high x 35.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth. The compartment shall have a single vertically hinged door.	_____	_____
PASSENGER'S SIDE ABOVE WHEEL COMPARTMENT A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be 37" high x 63.75" wide x 14" usable depth. The compartment shall have a horizontally hinged, raise up door.	_____	_____
PASSENGER'S SIDE COMPARTMENT BEHIND REAR WHEELS A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth. The compartment shall have double vertically hinged doors.	_____	_____
REAR FACE COMPARTMENT A rear compartment shall be provided on the apparatus just ahead of the rear step. The compartment shall be a minimum of 30" useable depth. The compartment shall have maximum height with selected apparatus options.	_____	_____
REAR FACE COMPARTMENT DOOR - ROLL UP The rear compartment shall have a roll up door. The door shall have a satin finish.	_____	_____
DRIVER'S SIDE REAR COMPARTMENT - TRANSVERSE The driver's side compartment behind the rear wheels shall be open into the rear facing compartment (transverse).	_____	_____

Compliance
YES NO

PASSENGER'S SIDE REAR COMPARTMENT - TRANSVERSE

The passenger's side compartment behind the rear wheels shall open into the rear facing compartment (transverse). _____ _____

18" REAR TAILBOARD STEP

An 18" depth rear tailboard step shall be provided on the apparatus. The step shall be spaced from the rear face of the apparatus body a minimum of 3/4" for easy wash out. _____ _____

REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE

The rear step shall be constructed of NFPA compliant bright finish aluminum treadbrite. _____ _____

RUB RAILS - BRIGHT ANODIZED ALUMINUM

Extruded aluminum rub rails shall be provided on the apparatus body sides.
The rub rails shall have a bright finish with anodized coating to protect the finish.
The rub rails shall provide an integrated mounting location for the L.E.D. side marker lights as well as the reflectors. The rub rails shall be spaced from the apparatus body

a minimum of 1/4" with poly spacers.

The rub rails must be bolted on to the apparatus body to allow easy replacement if damaged. Rub rails that are permanently fastened to the apparatus body by welding or any other permanent method will not be acceptable.
NO EXCEPTION WILL BE ALLOWED TO THIS REQUIREMENT. _____ _____

RUB RAIL ENDS

The rub rail ends shall be 'capped' with a high impact resistant black EPDM contoured block. _____ _____

HOSE BED FLOORING

The floor of the hose bed shall be constructed of fiber reinforced Dura-Dek, or equal, material.

The top portion of each "T" cross section shall measure 1 5/8" wide x 3/16" thick with beaded ends. The vertical portion shall be 3/16" thick tapering out at the bottom to a thickness of 1/2" and have an overall height of 1". The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. The gray colored coating shall be baked on and include a slip resistant material. _____ _____

68" WIDE HOSE BED

The hose bed shall be 68" wide from side to side. _____ _____

HOSE BED CAPACITY

The hose bed shall have the capacity to carry the following hose load:

1,000 feet of 5 inch hose with STORZ connection.
1,200 feet of 2.5 inch DJ hose. _____ _____

HOSE BED DIVIDER(S)

There shall be two (2) hose bed divider(s) to partition off hose. The divider(s) shall be constructed of 3/16" thick aluminum plate material. The lower edge of the divider(s) shall have a two inch 90 degree bend toward one side and a 2" x 2" x 3/16" aluminum angle welded to the other side.

The divider(s) shall be adjustable by sliding in tracks which are recessed flush into the hose bed flooring, one on front and one on rear. The divider shall be held in place by two bolts on each end.

The upper rear corner of the divider(s) shall have a minimum of a 3" radius cut. _____ _____

HOSE BED COVER WITH VELCRO FASTENERS

A heavy duty vinyl coated nylon hose bed cover shall be provided to protect the hose

	Compliance YES	NO
load from the weather. The cover shall extend from the front of the hose bed to the rear and then extend downward to cover the exposed rear of the bed.		
The cover shall have a double reinforced area where the cover comes into contact with the upper rear corners of the hose bed dividers. The cover shall be secured to the apparatus using velcro on the sides and lift dots on front.		
The rear of the cover shall be secured to the apparatus using positive mechanical latches.	_____	_____
HOSE BED BULKHEAD		
A bulkhead divider shall be provided in the front area of the hose bed separating the hose bed from the tank fill tower(s). The balance of this area that is not occupied by fill tower or other mounted equipment shall be used as a dunnage compartment.	_____	_____
HOSE BED COVER - RED		
The hose bed cover shall be red.	_____	_____
LOW MOUNT ENCLOSED LADDER COMPARTMENT		
A ladder storage compartment shall be provided on the right side of the apparatus with an access door on the rear. The compartment shall be located below the hose bed level and shall not be located above or through the booster tank. The compartment shall be located between the booster tank and the right side compartments.		
For ease of removal and replacement with limited staffing, the compartment shall be designed to carry all portable ladders vertically on their beams. Ladder racks that carry the ladders horizontally shall not be acceptable.		
The compartment shall be constructed of 5052 1/8" aluminum with a brushed finish. Individual slides fabricated of 5052 H32 alloy aluminum shall be provided in the compartment on both sides to allow individual storage for all ladders. The slides shall be provided with permanently attached Rodex poly slip blocks with tapered front and rear edges to allow easier loading/unloading of the ladders.		
An aluminum tread plate vertically hinged door with a slam-type latch shall be provided on the compartment. The latch shall be activated by a large "D" ring control. The use of lift-and-turn or small snap type latches on this door shall not be acceptable.		
All ladders shall be capable of being removed individually without disturbing the remaining ladders.	_____	_____
PIKE POLE STORAGE		
Storage for two straight handle pike poles shall be provided in the ladder storage compartment.	_____	_____
LADDER COMPARTMENT LIGHT		
An L.E.D. light shall be provided in the ladder storage compartment. The light shall be mounted just inside the ladder compartment access door and activated with an automatic door switch.		
The light switch shall be incorporated into the door ajar warning system in the cab.	_____	_____
ALCO-LITE 24,14,10 LADDER PKG:		
ALCO-LITE 24' 2 SECTION ALUMINUM LADDER		
One (1) Alco-Lite model PEL-24, 24' NFPA compliant 2 section aluminum extension ladder shall be provided and mounted.	_____	_____
ALCO-LITE 14' ALUMINUM ROOF LADDER		
One (1) Alco-Lite PRL-14, 14' NFPA compliant aluminum roof ladder with folding hooks shall be provided and mounted.	_____	_____
ALCO LITE 10' ALUMINUM FOLDING ATTIC LADDER		
One (1) Alco-Lite model FL-10, 10' NFPA compliant aluminum folding attic ladder shall		

	Compliance YES	NO
be provided and mounted.	_____	_____
HARD SUCTION MOUNTINGS		
Two (2) hard suction hose troughs shall be provided and mounted one (1) above the high side compartments on left side and one (1) above the high side compartments on the right side. The troughs shall be constructed of 1/8" 5052 smooth aluminum sheeting material with a brushed or anodized finish.	_____	_____
HARD SUCTION SECURING CLAMPS		
The hard suction troughs shall have stainless steel or chrome plated handles with springloaded latches on each end to hold the hard suction hoses in place.	_____	_____
6" x 10' HARD SUCTION HOSES (2)		
Two sections of 6" diameter x 10' length clear lightweight PVC hard suction hose shall be provided.	_____	_____
HARD SUCTION HOSE COUPLINGS - NST		
The hard suction shall be coupled long handle female NST x rocker lug male NST.	_____	_____
HARD SUCTION - KOCHEK		
The hard suction shall be Kochek brand.	_____	_____
6" LOW LEVEL STRAINER WITH JET		
A Kochek model LL60 low level strainer with jet shall be provided. The strainer shall have a 6" female NST swivel connection.	_____	_____
COMPARTMENT SHELF TRACKS - ALUMINUM		
Four (4) sets consisting of two heavy duty aluminum Uni Strut tracks shall be provided in specified compartments, one for each end of shelf.		
The tracks shall not be welded to the apparatus body.	_____	_____
SHALLOW DEPTH COMPARTMENT SHELVING		
There shall be four (4) shallow depth shelves provided. The shelves shall be constructed of 1/8" smooth aluminum with a 2" upward bend on the front and rear edges.	_____	_____
DRIVER'S SIDE FRONT OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area in front of the rear axle on the driver's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____
DRIVER'S SIDE REAR OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area behind the rear axle on the driver's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____
PASSENGER'S SIDE FRONT OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area in front of the rear axle on the passenger's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____

	Compliance YES	NO
PASSENGER'S SIDE REAR OF WHEEL WELL SPARE CYLINDER COMPARTMENT		
A compartment shall be provided in the wheel cowl area behind the rear axle on the passenger's side to hold a total of two (2) spare SCBA cylinders.		
The compartment shall be one piece injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.	_____	_____
WHEEL WELL STORAGE COMPARTMENT DOORS – BRUSHED FINISH STAINLESS		
Brushed finish stainless steel access doors shall be provided on each wheel well storage compartment in the wheel well.	_____	_____
WHEEL WELL SCBA CYLINDER COMPARTMENT RETENTION STRAPS		
One 1" wide loop of high visibility yellow webbing shall be installed in each wheel well spare cylinder compartment for each cylinder to be stored in the compartment. The loop(s) shall be designed to loop around the cylinder valve and help prevent the cylinder from sliding out of the compartment if the door is not latched or fails.	_____	_____
TURTLE TILE FLOOR MATS		
All lower level apparatus body compartment floors shall be provided with 3/4" thick Turtle Tile modular 12" x 12" square tiles with perforated top surface for ventilation and air circulation. The tiles shall be easily removable for cleaning the compartment. The tiles shall interlock into each other to form a "one piece" floor liner.		
Floors with permanent mounted or bolted in place accessories will not have floor mats.	_____	_____
TURTLE TILE - BLACK		
The Turtle Tile shall be black in color.		
FOLDING ACCESS STEPS		
Cast Products model SP4401-1CH-BL-A folding access steps shall be provided in areas listed in these specifications. All access steps provided on the apparatus shall support a minimum static load of 500 lbs. and be mounted in accordance to recommended mounting procedures as outlined by NFPA 1901. The steps shall be attached to the apparatus using stainless steel bolts with locking type nuts.		
The steps shall each have an L.E.D. light above and below the step area. The lights shall be activated by the park brake.	_____	_____
RIGHT FRONT COMPARTMENT ACCESS STEPS		
Four NFPA compliant folding steps shall be provided on the right side front compartment face.	_____	_____
LEFT FRONT COMPARTMENT ACCESS STEPS		
Four NFPA compliant folding steps shall be provided on the left side front compartment face.	_____	_____
RIGHT REAR ACCESS STEPS		
Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the right side.	_____	_____
LEFT REAR ACCESS STEPS		
Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the left side.	_____	_____
NFPA KNURLED FINISH HANDRAILS		
All handrails shall be 1 1/4" diameter extruded aluminum "knurled finish" with chrome plated stanchions. Rubber gaskets shall be provided between the stanchions and any painted surfaces. The rails shall comply with NFPA 1901.	_____	_____

	Compliance YES	NO
LEFT REAR VERTICAL HAND RAILS		
One NFPA compliant handrail shall be provided on the left rear of the apparatus for boarding the rear step and using the left rear hose bed access steps.	_____	_____
RIGHT REAR VERTICAL HAND RAILS		
One NFPA compliant handrail shall be provided on the right rear of the apparatus for boarding the rear step and using the right rear hose bed access steps.	_____	_____
LEFT FRONT GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the left front of the apparatus towards the front of the hose bed.	_____	_____
RIGHT FRONT GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the right front of the apparatus towards the front of the hose bed.	_____	_____
RIGHT REAR GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the right rear of the apparatus towards the rear of the hose bed.	_____	_____
LEFT REAR GRAB RAIL		
A 12" NFPA compliant horizontal handrail shall be provided on the left rear of the apparatus towards the rear of the hose bed.	_____	_____
48" INTERMEDIATE REAR HORIZONTAL HAND RAIL		
A 48" intermediate horizontal handrail shall be provided on the rear of the apparatus.	_____	_____
WALKWAY GRAB RAILS		
1 1/4" diameter extruded aluminum "knurled finish" handrails with chrome plated stanchions shall be provided on each side of the walkway entry.	_____	_____
NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM		
The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:		
NFPA MINIMUM ELECTRICAL LOAD DEFINITION		
The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode:		
1. Propulsion engine and transmission.		
2. The clearance and marker lights.		
3. Communication equipment. 5 amp default.		
4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.		
5. Minimum warning lights required for "blocking right of way" mode.		
6. The current to simultaneously operate and fire pump and all specified electrical devices.		
7. Anything defined by the Purchaser, in the advertised specifications, to be critical to the mission of the apparatus.	_____	_____
RESERVE CAPACITY TEST		
The first electrical test to be performed will be the **Reserve Capacity Test**. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, the items 1-7 shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.	_____	_____

Compliance
YES NO

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed shall be **Alternator Performance Test at Full Load**. All electrical loads shall be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage shall not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds.
Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test. _____ _____

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees. _____ _____

12-VOLT WIRING SYSTEM

All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device shall not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every three inches along the entire length of all apparatus body wires (as required by NFPA 1901). All wiring shall be routed through heavy-duty PVC split loom, securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets

All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used.

All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type.

A removable bulkhead shall that extends from the floor to the ceiling of both side rear compartments shall be provided to protect rear wiring. _____ _____

MULTI-PLEXED ELECTRICAL SYSTEM

The apparatus body electrical system shall incorporate a Multi-plexed Electrical System. The multi-plex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of (24) output channels and (24) input channels. All inputs and outputs will be configured into a scaleable electrical harness utilizing Duetsche connectors. The nodes must be waterproof and not require special mounting requirements.

The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable.

Placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs. The multi-plex system shall be field-re-programmable and re-configurable by any authorized dealer or service center. This complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, door open notification system, interlock modules, separate volt meter and ammeter.

The Base System Shall Include:

Total Load Management
Load Shedding Capabilities
Load Sequencing Capabilities
“On-Board” Diagnostics Readout
Very Reliable, Solid-State Hardware
Error Reporting
Continuous system monitoring and reporting
Emergency warning lamp flasher
Door Ajar System
Field Configurable
Expandability Capabilities
Advanced PC Diagnostics

	Compliance YES	NO
As-built wiring harness drawings and a master circuit list of electrical circuits that the apparatus builder installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions. Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus builder shall not be accepted**.	_____	_____
AUTOMATIC HIGH IDLE FUNCTION		
An automatic high idle system shall be installed and will automatically activate whenever the system voltage drops below determined voltage. The high idle will remain on until adequate voltage is achieved.	_____	_____
LICENSE PLATE LIGHT/BRACKET		
A chrome plated L.E.D. license plate light shall be provided on the rear of the apparatus. The light shall function with the head light switch.		
A license plate mounting bracket shall be provided that spaces the license plate away from the apparatus body.	_____	_____
CLEARANCE LIGHTS/REFLECTORS		
All apparatus body clearance lights shall be L.E.D. style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage, and shall comply with FMVSS-108 regulations.	_____	_____
MID-MOUNTED SIDE TURN SIGNAL - L.E.D.		
A mid-mounted amber L.E.D. side turn signal shall be provided in the mid-section area of the apparatus on both sides. The low profile signal shall be recessed into the side rub rail for protection.	_____	_____
PUMP COMPARTMENT LIGHTS (2)		
Two Weldon 2025 compartment lights shall be provided to illuminate the interior of the pump compartment. The lights shall function with the pump operators gauge panel lights.	_____	_____
ENGINE COMPARTMENT LIGHT		
A Weldon model 2025 light shall be provided and mounted over the engine on the engine compartment wall. An on/off switch shall be provided on the light to activate it.	_____	_____
DUAL ILI – L.E.D. COMPARTMENT LIGHTING		
Each apparatus body compartment shall have two ILI track type L.E.D. lights vertically mounted in the compartment. The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.		
A compartment that is considered a 'full height' compartment shall each have two 48" long light sections and a 'low height' or above wheel compartment shall each have two 18" long sections.		
The lights shall function automatically and independently of other compartments when the compartment door is opened. **Compartment lighting systems that are controlled by a single, dash mounted switch are not acceptable**.	_____	_____
COMPARTMENT LIGHT SWITCHES		
Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The reed shall be potted in the contact housing with polyurethane and the housings shall be molded fire retardant ABS plastic. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.		
Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.		
The compartment lights shall function automatically when the door is opened. A master compartment light switch shall not be acceptable.	_____	_____

Compliance
YES NO

CHASSIS PROVIDED DOOR AJAR INDICATOR

The apparatus body door ajar warning system shall be connected to the chassis provided door ajar indicator system. _____ _____

PERIMETER GROUND LIGHTING - Seven (7)

There shall be seven (7) Truck-Lite model 40 underbody perimeter lights furnished and installed on the apparatus body. The lights shall have an unbreakable polycarbonate lens and housing. The light shall be sealed to help prevent moisture entry.

The ground lights shall be activated with the parking brake.

NOTE: Chassis perimeter ground lighting is listed in the chassis section of this specification. _____ _____

L.E.D. APPARATUS BODY STEP LIGHTING

All apparatus body and pump steps and running boards shall be illuminated using chrome plated or stainless steel L.E.D. lights. The lights shall function automatically with the park brake. _____ _____

GROUND/STEP LIGHTING CUTOFF SWITCH

A ground/step light cut off switch shall be provided in the cab to allow the driver to disable the ground lights and other lights that activate when the parking brake is set. The switch shall automatically re-set itself when the parking brake is released. _____ _____

BATTERY CHARGER

The battery charging system shall be provided on the chassis. The description of the charging system can be found in the chassis portion of this specification. _____ _____

WHELEN TRI-CLUSTER TAILLIGHTS - L.E.D. - INCANDESCENT

Whelen 60R00BRR 4" x 6" L.E.D. taillights and 60A00TAR 4" x 6" L.E.D. turn signals shall be provided. The backup lights shall be 4" x 6" clear incandescent. A polished trim housing shall be provided, one each side for mounting the tail lights, turn signal lights, and backup lights. _____ _____

BACKUP ALARM

A Code 3 (or equal) model DAP50 97db backup alarm shall be provided and shall automatically activate when the apparatus transmission is placed into reverse.

The backup alarm shall exceed all NFPA1901 and SAE J994 Type D requirements and testing. _____ _____

EMERGENCY LIGHTING SWITCHING SYSTEM FOR CUSTOM CHASSIS

The switching system shall be provided by the fire chassis manufacturer and is further described in the chassis specifications. _____ _____

ZONE A UPPER WARNING LIGHTING

A Whelen FN72QLED light bar shall be mounted on the top of the cab roof.
The light bar shall be 72" in length and mounted with low profile stainless steel brackets.

The light bar shall have two front corner Linear-L.E.D.s, four front Linear-L.E.D.s (2 red, 2 white) and two red Linear-L.E.D.s.

The lenses on the Officer's side shall be red and the lenses on the Driver's side shall be red. _____ _____

ZONE C UPPER WARNING LIGHTING

Two Whelen model MCFLED2R L.E.D. beacons shall be provided one on each side on the rear. _____ _____

FRONT GRILLE WARNING LIGHTS - CHASSIS PROVIDED

The front grille warning lights shall be provided with the chassis and are listed in the chassis specifications. _____ _____

Compliance
YES NO

INTERSECTION WARNING LIGHT - SIDES

One Whelen model M6RC red L.E.D. light with clear lens shall be provided on each side as low and far forward as possible on the apparatus. A chrome bezel shall be provided around the lights. _____ _____

MID-SECTION WARNING LIGHTS - SIDES

One Whelen LINZ6 red L.E.D. light shall be provided on each side in the mid-section of the apparatus. A chrome bezel shall be provided around the lights. _____ _____

MID-SECTION WARNING LIGHTS - SIDES

One Whelen LINZ6 red L.E.D. light shall be provided shall be provided on each side of the apparatus as low and as far rearward as possible on the apparatus. A chrome bezel shall be provided around the lights. _____ _____

REAR FACING LOWER WARNING LIGHTS

Two Whelen model M6RC red L.E.D. lights with clear lens shall be provided on the lower rear of the apparatus. A chrome bezel shall be provided around the lights. _____ _____

WHELEN 9E SCENE LIGHTS

Three Whelen model 9ECA0CR 9" x 7" 26 degree scene lights shall be provided and mounted one on each side and one on the rear. The lights shall have a chrome plate trim bezel. _____ _____

12 VOLT SCENE LIGHT ACTIVATION SWITCH (1)

A single switch shall be located on the cab control console to activate the 12 volt scene light(s). _____ _____

DUAL FUNCTION REAR SCENE LIGHT(S)

The rear facing scene light(s) shall activate automatically when the apparatus transmission is placed into reverse. _____ _____

L.E.D. HOSE BED LIGHT

One L.E.D. light shall be provided and mounted in the front of the hose bed.

The light shall be controlled by the pump panel light switch. _____ _____

FRC SPECTRA L.E.D. TELESCOPING LIGHT - 12 VOLT

Two (2) Fire Research model SPA540-Q20-TW top raising telescoping light(s) shall be mounted on the apparatus.

The light head shall be 12 volt L.E.D. and shall draw a maximum of 18 amps creating 20,000 lumens. An on/off switch shall be provided under the light head.

The telescoping pole shall be constructed of heavy wall anodized tube. The pole shall be secured in any raised position with a non-directional advanced twist lock locking device. The twist lock mechanism shall have a knurled positive grip.

The light(s) shall include a three wire coiled cord extended from the pole top.

The light(s) shall be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901. _____ _____

FLUID CAPACITY LABEL

A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance:

1. Engine Oil.
2. Engine Coolant.
3. Transmission Fluid.
4. Pump Transmission Fluid.
5. Pump Primer Fluid (if applicable).

	Compliance YES	NO
6. Drive Axle Fluid.		
7. Air Conditioning Refrigerant.		
8. Air Conditioning Lubrication Oil.		
9. Power Steering Fluid.		
10. Cab Tilt Mechanism Fluid (if applicable).		
11. Transfer Case Fluid.		
12. Equipment Rack Fluid (if applicable).		
13. Air Compressor System Lubricant.		
14. Generator System Lubricant.		
15. Front tire cold pressure.		
16. Rear tire cold pressure.		
17. Maximum tire speed ratings.	_____	_____

OCCUPANCY LABEL

A permanent plate or label stating the maximum number of personnel allowed to ride on the apparatus at any one time shall be provided and installed in clear view of the driver. _____ _____

SEATED AND BELTED LABEL

Permanent plate or label shall be provided stating "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION". The label shall be visible from each seated position. _____ _____

DO NOT RIDE LABEL

A permanent plate or label shall be attached to the appropriate areas of the apparatus stating that riding on the rear step or any exterior position on the apparatus is prohibited. _____ _____

DO NOT WEAR HELMET LABEL

Permanent plate or label shall be provided stating "DO NOT WEAR HELMET WHILE SEATED". The label shall be visible from each seated position. _____ _____

MAXIMUM TIRE SPEED LABEL

A permanent plate or label shall be provided in the cab stating the maximum tire speed rating. _____ _____

LENGTH, HEIGHT, WEIGHT LABEL

A permanent plate or label shall be provided in the cab stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus.

The wording on this label shall indicate that the information on the plate/label was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the Purchaser shall revise the height dimension on the plate. _____ _____

UNDERWRITERS LABORATORIES TESTING

The apparatus shall undergo an Underwriters Laboratories Certification Test to insure that the completed apparatus meets the requirements of NFPA #1901. The certificate shall be provided to the Purchaser upon completion. Underwriters Laboratories shall also perform the required testing on the entire installed electrical system. Self-certification by the apparatus manufacturer will not be acceptable. _____ _____

MANUFACTURER'S RECORD CERTIFICATION

The contractor shall supply, at the time of delivery, at least one copy of the following documents:

1. The manufacturers record of apparatus construction details, including the following information:

    a. Owners name and address
    b. Apparatus manufacturer, model, and serial number
    c. Chassis make, model, and serial number
    d. GAWR of front and rear axles
    e. Front tire size and total rated capacity in pounds (kg)
    f. Rear tire size and total rated capacity in pounds (kg)

	Compliance YES	NO
g. Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)		
h. Engine make, model, serial number, rated horsepower and related speed,		
i. and governed speed		
j. Type of fuel and fuel tank capacity		
k. Electrical system voltage and alternator output in amps		
l. Battery make, model, and capacity in cold cranking amps (CCA)		
m. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio		
n. Ratios of all driving axles		
o. Maximum governed road speed		
p. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number		
q. Pump transmission make, model, serial number, and gear ratio		
r. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number		
s. Water tank certified capacity in gallons or liters (if applicable).		
t. Aerial device type, rated in vertical height in feet, rated horizontal height in feet, and rated capacity in rounds.		
u. Paint manufacturer and paint number(s)		
v. Company name and signature of responsible company representative	_____	_____
2. Certification of slip resistance of all stepping, standing, and walking surfaces		
3. If the apparatus has a fire pump, a copy of the pump manufacturers certification of suction capability.		
4. If the apparatus has a pump, a copy of the apparatus manufacturers approval for stationary pumping applications.		
5. If the apparatus has a pump, a copy of the engine manufacturers certified brake horsepower curve showing the maximum governed speed.		
6. If the apparatus has a pump, a copy of the pump manufacturers certification of the hydrostatic test.		
7. If the apparatus has a pump, a copy of the certification of inspection and test for the fire pump.		
8. If the apparatus has an aerial device, the certification of inspection and test for the aerial device.		
9. If the apparatus has an aerial device, all technical information required for inspections to comply with NFPA 1914.		
10. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source		
11. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation		
12. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)		
13. Written load analysis and results of the electrical system performance tests		
14. When the apparatus is equipped with a water tank, the certification of water tank capacity.	_____	_____

VEHICLE ROLLOVER STABILITY

The apparatus chassis shall be equipped with a stability control system and shall be certified to NFPA 1901 Rollover Stability requirements. _____ _____

VEHICLE DATA LOGGER - CHASSIS PROVIDED

The vehicle data logger shall be provided from the chassis manufacturer. _____ _____

SEAT BELT WARNING SYSTEM - CHASSIS PROVIDED

The seat belt warning system shall be provided from the chassis manufacturer. _____ _____

PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT

All interior compartment surfaces shall remain # 4 brushed stainless steel. There shall be no paint or any other type of coating on the interior compartment surfaces. Standard mill finish, DA finish or swirled finish shall not be accepted.

Any exterior surfaces that are to be painted shall be individually listed in the apparatus body portion of this specification.

All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moisture accumulation in flanged areas. _____ _____

	Compliance YES	NO
PPG CERTIFIED 10 YEAR LIMITED PAINT WARRANTY		
The apparatus body exterior finish paint shall have a 10 year limited warranty per the terms and conditions of the PPG written warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable.	_____	_____
ELECTROLYSIS CORROSION CONTROL		
The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.	_____	_____
APPARATUS BODY UNDERCOATING		
The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance.	_____	_____
COMPARTMENT INTERIORS - BRUSHED STAINLESS FINISH		
The compartment interiors shall be brushed stainless steel # 4 finish. The polished brushed finish shall be as provided by the manufacturer of the material.		
Interiors with any type of paint, sprayed-on coatings, DA finish, or standard "mill finish" will not be acceptable.	_____	_____
TIRE PRESSURE VISUAL INDICATOR		
Real Wheels model RWTG1234 valve stem mounted visual indicators shall be provided on each tire. The L.E.D. indicators shall flash when the tire pressure drops 8 psi.	_____	_____
REFLECTIVE LETTERING		
A maximum of sixty (60) 4" maximum height reflective self-adhesive letters with black outline and drop shadow shall be applied to both sides of the chassis cab.		
The exact type style, wording and placement of the lettering will be provided to the successful bidder at the pre-construction conference.	_____	_____
6" NFPA REFLECTIVE STRIPE		
A 6" reflective stripe shall be applied to the apparatus. The stripe shall be applied to a minimum of 50% of the length of the apparatus on each side, 50% across the rear and 25% across the front of the apparatus. The stripe shall comply with NFPA 1901 requirements.	_____	_____
PRIMARY REFLECTIVE STRIPE COLOR - WHITE		
The primary reflective stripe shall be 680-10 white.	_____	_____
REFLECTIVE STRIPE - HORIZONTAL		
The reflective stripe shall be applied in a straight horizontal line from front to rear. The height of the stripe on the chassis cab and the body shall be as close as possible.	_____	_____
REAR CHEVRON STRIPING - DIAMOND GRADE		
A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating 983-71 red and 983-23 fluorescent yellow green "Diamond Grade" retro-reflective striping. The striping shall slope downward away from the centerline of the apparatus at a 45 degree angle.		
The retro-reflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retro-Reflective Sheeting for Traffic Control", Type I or better.	_____	_____

	Compliance YES	NO
FUEL TANK ACCESS		
A removable panel shall be provided on the rear of the apparatus for maintenance access to the top of the fuel tank.	_____	_____
ENGINE EXHAUST		
The exhaust pipe from the engine shall not be modified from the design configuration that was provided from the chassis manufacturer.		
Exhaust shall be equipped with MagnaGrip connects.		
Shielding shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed by the chassis manufacturer to comply with EPA equipment requirements.	_____	_____
LEFT (DRIVER'S) SIDE FUEL FILL		
A chassis fuel fill shall be located in the driver's side rear wheel cowl. The fill shall be located behind a highly polished stainless steel hinged door with flush latch.		
The fuel fill shall be properly vented.	_____	_____
FRONT/REAR MUD FLAPS		
Heavy duty black rubber mud flaps shall be provided on the front and rear wheels. The mud flaps shall be attached to the apparatus in the front and the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.	_____	_____
FRONT/REAR AXLE NUT COVERS AND BABY MOONS		
The front and rear axle shall have stainless steel nut covers and baby moons.	_____	_____
REAR PULLING EYES		
Two rear 3/4" CRS pulling eyes shall be provided under the rear tailboard. The eyes shall have a minimum of a 3" clear opening for passing chains through the eye.	_____	_____
"AS BUILT" APPARATUS BODY OWNERS MANUAL CD (2)		
Two "as built" apparatus body owner's manual CD's shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the CD. The CD's shall be "read only" and shall not allow modification.		
To eliminate component confusion, generic CD's with equipment that is not provided on the apparatus body shall not be acceptable.	_____	_____
2 LB. BAG OF FASTENERS		
A 2 lb. bag of fasteners used in the final assembly of the apparatus shall be provided. The bag shall contain a variety of fasteners and shall not be one single size.	_____	_____
DOT DRIVE AWAY KIT		
Three triangular warning reflectors with carrying case and one 5 lb. ABC fire extinguisher with bracket shall be provided.	_____	_____

BID PROPOSAL TOTAL OPTION B: $_____

OPTION C:

There will be an option to bid an aluminum extruded body constructed of 3/16" wall aluminum minimum. The aluminum option must carry a 20 year substructure and corrosion perforation warranty and a 15 year body warranty. All other required specifications listed in Option B – Custom must be met in order to select this option.

$_____

S.A. & I. 425 (2000)

AFFIDAVIT FOR FILING WITH COMPETITIVE BID

STATE OF OKLAHOMA)
) SS
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says, that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any county official or employee as to quantity, quality or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any county official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

VENDOR: _____

SIGNATURE: _____

TITLE: _____

ADDRESS: _____

CITY/STATE/ZIP _____

PHONE _____

FAX _____

EMAIL _____

Subscribed and sworn to before me this _____, 2014.

_____
Notary Public (Clerk or Judge)

My Commission Expires: _____
(SEAL)

Note: Each competitive bid submitted to a county, school district or municipality must be accompanied with the above Affidavit as required by 61 Okla.St.Ann.§138

S. A.& I. 1-4001 (2005)

AFFIDAVIT FOR CONTRACTS AND PAYMENTS

STATE OF OKLAHOMA)
) ss
COUNTY OF)

THE UNDERSIGNED (ARCHITECT, CONTRACTOR, SUPPLIER OR ENGINEER), OF LAWFUL AGE, BEING FIRST DULY SWORN, ON OATH SAYS THAT THIS INVOICE OR CLAIM IS TRUE AND CORRECT. AFFIANT FURTHER STATES THAT THE (WORK, SERVICES OR MATERIALS) AS SHOWN BY THIS INVOICE OR CLAIM HAVE BEEN (COMPLETED OR SUPPLIED) IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, ORDERS OR REQUESTS FURNISHED THE AFFIANT. AFFIANT FURTHER STATES THAT (S)HE HAS MADE NO PAYMENT DIRECTLY OR INDIRECTLY TO ANY ELECTED OFFICIAL, OFFICER OR EMPLOYEE OF THE STATE OF OKLAHOMA, ANY COUNTY OR LOCAL SUBDIVISION OF THE STATE, OF MONEY OR ANY OTHER THING OF VALUE TO OBTAIN PAYMENT OF THE INVOICE OR PROCURE THE CONTRACT OR PURCHASE ORDER PURSUANT TO WHICH AN INVOICE IS REQUIRED.

_____
BUSINESS NAME

By _____

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, 20___

_____
NOTARY PUBLIC (OR CLERK OR JUDGE)

NOTE: 62 OKL.ST.ANN. § 310.9 (B), AUTHORIZES COUNTIES EXECUTING MORE THAN ONE CONTRACT, EXCEEDING $ 25,000.00 DURING THE FISCAL YEAR, WITH AN ARCHITECT, CONTRACTOR, ENGINEER OR SUPPLIER OF CONSTRUCTION MATERIALS TO ACCEPT ONE AFFIDAVIT APPLYING TO ALL WORK, SERVICES OR MATERIALS COMPLETED OR SUPPLIED UNDER THE TERMS OF AWARDED CONTRACTS, OR WHICH ARE NEEDED ON A CONTINUAL BASIS; SUCH AFFIDAVIT TO BE IN LIEU OF ALL INDIVIDUAL AFFIDAVITS FOR EACH INVOICE SUBMITTED IN RELATION TO SUCH CONTRACT.

Form **W-9**
(Rev. August 2013)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification:
☐ Individual/sole proprietor ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____

☐ Other (see instructions) ▶

Exemptions (see instructions):
Exempt payee code (if any) _____
Exemption from FATCA reporting code (if any) _____

Address (number, street, and apt. or suite no.)

City, state, and ZIP code

Requester's name and address (optional)
Custer County
P. O. Box 300
Arapaho, OK 73620

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number
[ ][ ][ ] – [ ][ ] – [ ][ ][ ][ ]

Employer identification number
[ ][ ] – [ ][ ][ ][ ][ ][ ][ ]

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below), and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here | **Signature of U.S. person ▶** | **Date ▶**

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. The IRS has created a page on IRS.gov for information about Form W-9, at *www.irs.gov/w9*. Information about any future developments affecting Form W-9 (such as legislation enacted after we release it) will be posted on that page.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, payments made to you in settlement of payment card and third party network transactions, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.