

Exeter VFD – Toyne Proposal Specifications

INTENT OF SPECIFICATIONS

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, 2016 edition, unless otherwise specified in these specifications, shall prevail.

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.

HIGHWAY PERFORMANCE

With the apparatus loaded to its estimated in-service weight, the front to rear weight distribution shall be within limits set by the chassis manufacturer. The apparatus shall comply with all GAWR and GVWR ratings of the chassis.

While loaded to its estimated in-service weights, the apparatus shall be capable of the following performance while on dry paved roads that are in good condition:

1. The apparatus shall be capable of accelerating from 0 to 35 MPH from a standing start within 25 seconds on a 0 % grade.
2. Attaining a speed of 50 MPH on a 0 % grade.
3. Maintaining a speed of at least 20 MPH on any grade up to and including 6 %.

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.

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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 200 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.

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.

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.

APPROVAL DRAWINGS

After award of the bid, the contractor shall provide detailed, "D" size engineering drawings for use at the pre-construction conference. These drawings shall include, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus shall be required with the bid. The drawing shall include right, left, top and rear views of the apparatus. These drawings shall be updated and sent back to the department if any changes are made at the pre-construction conference.

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The successful contractor shall also provide a detailed pump panel layout drawing for department evaluation and approval before construction of the apparatus is begun. It is required that the pump and plumbing be designed and engineered in the builder's engineering department before construction. Plumbing assembled "on the floor" without engineering drawings, shall not be acceptable.

For evaluation purposes, samples of the as-built electrical system schematics, engineered plumbing drawings and pump 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 \$10,000,000.00 of liability insurance

PUMP & APPARATUS TRAINING

The successful bidder shall provide a minimum eight (8) hour 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".

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.

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).

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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:

- Name of Company President.
- Office address.
- Office telephone number.
- Email address.
- Home address.
- Home telephone number.
- 24/7 Cellular telephone number.

TOP OF THE LINE 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 of the line brand/model or from the top of the line facility.

It is the intention of the purchaser to purchase a top of the line, first class, #1 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.

AWARD OF CONTRACT

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.

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 purchasers location for a sufficient period of time to allow all individuals to gain a thorough knowledge of the operation of the apparatus.

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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.

PERFORMANCE AND PAYMENT GUARANTY

The successful bidder to whom the award is made shall execute and deliver to the purchaser a Performance and Payment bond on the amount of 100 percent of the contract price amount. The Bond shall be made payable to the purchaser and shall be provided by the manufacturer of the apparatus. (Bonds submitted by dealers or agents will not be acceptable.) Failure to submit this bond within 21 days of official notification of bid award will result in rejection of said bid proposal.

LATE DELIVERY PENALTY

All bidders shall quote a delivery date based on number of calendar days after signing of contract by the Fire Department. A \$ 100.00 per day penalty will be deducted from the final payment on the apparatus for each day that the manufacturer is late with delivery.

SERVICE CENTER

The bidder shall provide service information on the apparatus. The bidder shall list the nearest service center in relationship to the purchaser's location and the distance from the purchaser shall also be listed. This service center must be capable of performing all maintenance and repairs on the apparatus in a timely manner.

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.

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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.

***** HEIGHT REQUIREMENT *****

The maximum loaded height of this apparatus shall not exceed 122" with all equipment nested or lowered to its lowest position.

***** LENGTH REQUIREMENT *****

The maximum length of this apparatus shall not exceed 33' 5".

CERTIFICATION OF NFPA 1901-2016 COMPLIANCE

As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, whom will be responsible for ensuring that all aspects of NFPA 1901 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 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party or waive any item required by NFPA 1901, the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901 4.21.

The "Statement of Exceptions" shall include:

- A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance.
- A description of the particular aspect of the apparatus that is not compliant therewith or required equipment that is missing.
- A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.
- An identification of the entity whom will be responsible for making the necessary post-delivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance to the 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.

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.

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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.

FIRE HELMET MOUNTINGS

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

WEIGHT CERTIFICATION

Documents from a certified scale showing actual loading on the front, rear and overall apparatus shall be provided. The apparatus shall be scaled with the water tank full but without personnel, equipment and hose.

UNDERWRITER'S LABORATORIES TESTING

The apparatus shall undergo an Underwriter's 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. Underwriter's 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 OF APPARATUS CONSTRUCTION

All information required to comply with NFPA 1901 4.20.1 shall be provided with the completed apparatus.

OPERATIONS AND SERVICE DOCUMENTATION

The apparatus shall be complete with all operation and service documentation covering the apparatus as delivered and accepted. The documentation shall address the inspection, service and operations of the apparatus and all major components as required in NFPA 1901 4.20.2.

FRONT/REAR AXLE NUT COVERS AND BABY MOONS

The front and tandem rear axles shall have stainless steel nut covers and baby moons.

TIRE PRESSURE VISUAL INDICATORS

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

TIRE PRESSURE EQUALIZATION SYSTEM

A tire pressure equalization system shall be provided on the rear single axle tires. The system shall include stainless steel hoses. The system shall automatically isolate the "good" tire in the event of a tire 'blowout'. If either tire develops a leak, the system shall isolate the tires after a pressure drop of 10 psi. The system shall provide visual indication of proper inflation, under inflation or over inflation.

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ENGINE COMPARTMENT LIGHT - LED

An LED 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.

LED PERIMETER GROUND LIGHTING -five (5)

There shall be five (5) LED underbody perimeter lights furnished and installed. The lights shall 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.

LED APPARATUS BODY STEP LIGHTING

All apparatus body and pump steps and running boards shall be illuminated using chrome plated or stainless steel LED 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 35/10 BATTERY CHARGER

A Kussmaul Auto-Charge 35/10 fully automatic battery charger with 35-amp output shall be installed on the apparatus. A 10-amp battery saver shall be provided to charge accessory items.

BATTERY STATUS DISPLAY

A 10 element waterproof bar graph display shall be provided. The display shall indicate the battery charge level.

The display shall be mounted on the exterior of the apparatus near the shoreline connection.

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.

AUTO-EJECT COVER - YELLOW

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

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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.

VEHICLE DATA RECORDER (VDR)

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

- Vehicle speed (MPH).
- 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 and 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 and shall be capable of being uploaded by the user to a computer and transferable to into a data management software package. The software shall be provided with the apparatus. The software shall be both "Windows" and "Apple" compatible and shall produce the following formatted reports from the uploaded data:

- Raw second-by-second data over a specified data/time range.
- 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).

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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 seated positions that are designed to be occupied while the vehicle is in motion as well as a visual display visible 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 (2)

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

INNER CAB DOOR REFLECTIVE STRIPING - 2 DOOR

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

ENGINE HORIZONTAL EXHAUST

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 to comply with EPA equipment requirements and shall not be modified.

HOT EXHAUST DANGERS LABEL - FAMA04

A permanent label shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

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 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 step assembly.

FRONT MUD FLAPS

Heavy duty black rubber mud flaps shall be provided on the front wheels. The mud flaps shall be attached to the apparatus in the wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

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REAR MUD FLAPS

Heavy duty black rubber mud flaps shall be provided on the rear wheels. The mud flaps shall be attached to the apparatus in the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

BATTERY DANGERS LABEL - FAMA01

A permanent label shall be provided near the battery location that warns of potential injury or death that could be caused by the batteries. The label shall also state precautions that should be taken while working on or around the batteries.

ROTATING SHAFTS DANGER LABEL - FAMA02

A permanent label shall be provided on each side of the frame rail and in any other location(s) where rotating shaft hazards are apparent. The label shall warn of potential injury or death that could be caused by the movement of the shaft(s) as well as precautions that should be taken while working on or around them.

HOT SURFACE DANGERS LABEL - FAMA03

A permanent label shall be provided near any hot surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

SPINNING ENGINE FAN DANGER LABEL - FAMA05

A permanent label shall be provided on both sides of the engine fan. The label shall warn of potential injury or death that could be caused by the movement of the fan as well as precautions that should be taken while working on or around them.

SEATED AND BELTED WARNING LABEL - FAMA07

A permanent label shall be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label shall also state potential injuries or death that could be caused if the safety belts are not used properly.

AIR CONDITIONING REFRIGERANT WARNING LABEL - FAMA09

If the apparatus is equipped with any type of air conditioning system, a permanent label shall be provided that is located in an area that would be visible to service personnel. The label shall state that the system contains R134A, the necessary precautions that should be taken and the dangers of working on or around the system.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA10

A permanent label shall be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label shall state that all equipment shall be properly secured and also warn of potential injury or death that could be caused by failing to do so.

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FIRE SERVICE TIRE RATING LABEL - FAMA12

A permanent label shall be provided inside of the cab in view of the driver while entering the cab warning of the dangers of improper use of the tires on the apparatus. The label shall also warn of potential injury or death that could be caused by improper tire use or condition.

ELECTRONIC STABILITY CONTROL LABEL - FAMA13

If the apparatus is equipped with an electronic stability control system, a permanent label shall be provided inside of the cab in view of the driver warning of the dangers of improper operation of the apparatus and the importance of safe driving. The label shall also warn of potential injury or death that could be caused by improper operation of the apparatus.

MAXIMUM OCCUPANCY LABEL - FAMA14

A permanent label shall be provided inside of the cab in view of the driver stating the maximum number of personnel that can ride in the apparatus. The label shall also warn of potential injury or death that could be caused by exceeding the stated capacity.

DO NOT WEAR HELMET LABEL - FAMA15

A permanent label shall be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label shall also warn of potential injury or death that could be caused by wearing helmet in cab.

VEHICLE BACKING LABEL - FAMA17

A permanent label shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

INTAKE/DISCHARGE CAP PRESSURE LABEL - FAMA18

A permanent label shall be provided in all areas that intakes and discharges are capped. The label shall give instruction on how to properly remove the cap. The label shall also warn of potential dangers, injury or death that be caused by failing to follow proper cap removal procedures.

HOSE RESTRAINT LABEL - FAMA22

A permanent label shall be provided near any hose storage area. The label shall instruct the operator to insure that all hose is properly secured prior to placing the apparatus in motion and to provide warning of potential dangers, including injury or death, in failing to do so.

ACCESS STEPS/LADDER LABEL - FAMA23

A permanent label shall be provided at any area of the apparatus where personnel will be boarding or exiting the apparatus. The label shall instruct the operator in the proper method of climbing into or onto the apparatus as well as exiting and provide indication of potential injury or death that could occur in failing to do so.

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TRAINED OPERATOR ONLY LABEL - FAMA25

A permanent label shall be provided on the pump panel that states that only properly trained personnel should operate the apparatus and shall indicate that injury or death could occur as a result.

NOT A STEP WARNING LABEL - FAMA26

A permanent label shall be provided in any horizontal location that a firefighter may feel tempted to use as a step but is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

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:

- Engine oil.
- Engine coolant.
- Chassis transmission fluid.
- Pump transmission fluid.
- Pump primer fluid.
- Drive axle fluid.
- Air conditioning refrigerant.
- Air conditioning lubrication oil.
- Power steering fluid.
- Cab-tilt mechanism fluid (if applicable).
- Transfer case fluid.
- Equipment rack fluid.
- CAFS compressor system lubricant.
- Generator system lubricant.
- Front tire cold pressure.
- Rear tire cold pressure.
- Maximum tire speed ratings.

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.

VEHICLE ROLLOVER STABILITY

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

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PLYMOVENT EXHAUST EXTRACTION SYSTEM

The exhaust system shall include a magnetic flange to accept the Fire Department's Plymovent exhaust extraction system bellows.

RADIO INSTALLATION

Four (4) Fire Department provided radio(s) shall be installed.

RADIO ANTENNA

All required radio antennas shall be supplied and installed for customer supplied radio equipment.

GPS ANTENNA

One (1) Dealer supplied GPS system with required antenna shall be installed.

WATEROUS CS 1,250 GPM SINGLE STAGE PUMP

The fire pump shall be a Waterous model CS that complies with all applicable requirements of the latest edition of the "Standard for Automotive Fire Apparatus" published by the National Fire Protection Association and printed in Pamphlet 1901.

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.

WATEROUS FIVE-YEAR LIMITED WARRANTY WITH TOTAL PROTECTION PACKAGE (TPP-5)

The following warranty shall be provided on the Waterous Fire Pump:

Waterous warrants, to the original Buyer only, that products manufactured by Waterous will be free from defects in material and workmanship under normal use and service for a period of five (5) years from the date the product is first placed in service, or five and one-half (5-1/2) years from the date of shipment by Waterous, whichever period shall be the first to expire provided the Buyer notifies Waterous, in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be nonconforming with the aforesaid warranty.

When required in writing by Waterous, defective products must be promptly returned by Buyer to Waterous at Waterous' plant at South St. Paul, Minnesota, or at such other place as may be specified by Waterous, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax, email, or mail.

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The aforesaid warranty excludes any responsibility or liability of Waterous for:

(a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, use in non-firefighting applications, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;

(b) defects in products manufactured by others and furnished by Waterous hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, Waterous will assign to Buyer, if requested by Buyer;

(c) any product or part, altered, modified, serviced or repaired other than by Waterous, without its prior written consent;

(d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation; and

(e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.).

ALL OTHER WARRANTIES ARE EXCLUDED, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER CAUSE OF ACTION, SHALL WATEROUS BE LIABLE FOR ANY PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR PERSONAL INJURY OR PROPERTY DAMAGES.

The exclusive remedy of Buyer and the sole liability of Waterous, whether based on contract, warranty, tort or any other basis of recovery whatsoever, is expressly limited at the election of Waterous to:

(a) the replacement at the agreed point of delivery of any product or part, which upon inspection by Waterous or its duly authorized representative, is found not to conform to the limited warranty set forth above, or

(b) the repair of such product or part, or

(c) the refund or crediting to Buyer of the net sales price of the defective product or part.

Buyer's remedies contained herein are exclusive of any other remedy otherwise available to Buyer.

Under either such options (A) or (B), Waterous agrees:

(a) to either furnish the labor required to dismantle, remove and reinstall the product where located at Buyer's premises or, at Waterous' option,

(b) to reimburse Buyer for its reasonable and accountable costs of such labor.

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UNDERWRITER'S LABORATORY CERTIFICATION

The completed apparatus shall be tested and approved by the independent testing company Underwriter's Laboratories, Inc. The manufacturer of the apparatus shall be responsible for all costs involved in this test. The certification of inspection and approval shall be presented to the Fire Chief of the Department upon delivery of the completed apparatus.

PUMP CONSTRUCTION

The fire pump shall be midship mounted. The pump shall be mounted across the chassis frame rails and shall be mounted at the fire pump manufacturer's recommended angular position with the drive shafts.

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 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the NFPA 1901 performance requirements.

The pump body shall be close-grained gray iron and shall be horizontally split in two sections for easy removal of the entire impeller shaft assembly and designed for complete servicing from the bottom of the truck without disturbing the setting of the pump in the chassis or apparatus piping which is connected to the pump. The pump body halves shall be bolted together on a single horizontal face to minimize leakage and facilitate re-assembly.

The impeller shaft shall be stainless steel, accurately ground to size and supported at each end by oil or grease lubricated anti-friction ball bearings for rigid and precise support. The bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. The impeller shaft shall be of a two-piece construction separable between the pump and pump transmission to allow true separation of the transmission from the pump without disassembly of either component. No sleeve type bearings shall be used.

The pump transmission shall be rigidly attached to the pump body assembly and be of the latest design incorporating a high strength, involute, tooth-form Hy-Vo chain drive and driven sprockets capable of operating at high speeds to provide smooth, quiet transfer of power.

MECHANICAL SEAL

The pump shaft shall have self-adjusting corrosion and wear resistant mechanical seals.

IMPELLER - FLAME PLATE

The impeller shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of the mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have a **Flame Plated Hub** to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

Wear rings shall be bronze and shall be easily replaceable to restore pump efficiency and eliminate the need to replace the entire pump casing due to wear.

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PRESSURE RELIEF VALVE

The pump shall be equipped with a Waterous automatic pressure control device. The relief valve shall operate over a range of 75 to 300 psi. Pressure rise upon activation shall be limited to a maximum of 30 psi. The hand control for setting the valve shall be a knob type control to adjust the pressure setting and an on/off control to place the relief valve in or out of operation.

An amber indicator light shall be provided immediately adjacent to the relief valve control to indicate an open position and a green light shall be provided to indicate a closed position.

ICI MASTER PUMP DISCHARGE PRESSURE GAUGE

An ICI 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) and have a high impact resistant clear acrylic lens.

ICI MASTER PUMP INTAKE PRESSURE GAUGE

An ICI 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.

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

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

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

The master discharge gauge shall be clearly labeled "PUMP DISCHARGE" and shall be located to the right of the intake pressure gauge. The label shall be black color.

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

HAND THROTTLE

A FRC Infinity PRO engine throttle shall be provided on the pump panel. The throttle shall have an automatic idle return on restart regardless of knob position along with a center mounted instant 'return-to-idle' button. The knob shall not have any mechanical stops thereby preventing 'stripping' of the throttle.

All indicator lights, as required by NFPA 1901 shall be provided.

CLASS ONE ENFO IV ENGINE MONITORING SYSTEM

A Class One Enfo IV engine monitoring system shall be provided on the apparatus with the display being mounted on the pump operator's panel.

The system shall provide RPM read out, System Voltage, oil pressure and engine water temperature.

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Visual and audible warning shall be given when system voltage is 11.9 volts or less, the engine oil pressure is 10 PSI or less or engine water temperature is 250 degrees Fahrenheit or more.

PUMP REVOLUTION COUNTER

A mechanical pump revolution adapter drive shall be furnished to check revolutions of the fire pump impeller. The RPM counter shall have a label indicating the ratio of the manual counter. A screw on cap shall be provided to protect the driver adapter.

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".

TRIDENT PRIMING SYSTEM

A Trident air priming system shall be provided.

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 WATEROUS MONARCH MASTER INTAKE VALVE - MANUAL

The left intake shall be equipped with a Waterous Monarch manually operated intake valve. The valve shall be a Jamesbury safer sphere valve designed to mount on the fire pump between the suction tube extension and the suction tube behind the pump panel. The valve shall not interfere with other suction or discharge openings on the fire pump or with the operating control properly mounted.

The valve shall be hydrostatically tested to 600 psig and vacuum tested to 26" hg.

The valve shall be operated by a manual handwheel control on the pump panel.

A label stating the following will be provided near the intake: "WARNING-SERIOUS INJURY OR DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED."

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LEFT INTAKE VALVE DRAIN

A 3/4" drain shall be provided on the intake to allow draining of the outer side of the valve.

LEFT INTAKE BLEEDER VALVE

A 1/4" bleeder valve shall be provided on the intake to bleed off air on the outer side of the valve.

TFT A-18 INTAKE RELIEF VALVE - LH SIDE INTAKE

A TFT model A-18 intake relief/dump valve shall be provided in the supply side of the left side gated master intake 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 50 psi to 200 psi. The relief system shall be adjustable with a common type box end wrench. The pressure setting shall be preset by the apparatus manufacturer at 125 psi.

SHORTEN SUCTION TUBE - LEFT SIDE

The left side master suction tube shall be shortened for use with externally installed hose appliances keeping the overall apparatus width to a minimum.

LEFT SIDE MASTER INTAKE CAP

A 6" FNST LH 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 WATEROUS MONARCH MASTER INTAKE VALVE - MANUAL

The right intake shall be equipped with a Waterous Monarch manually operated intake valve. The valve shall be a Jamesbury safer sphere valve designed to mount on the fire pump between the suction tube extension and the suction tube behind the pump panel. The valve shall not interfere with other suction or discharge openings on the fire pump or with the operating control properly mounted.

The valve shall be hydrostatically tested to 600 psig and vacuum tested to 26" hg.

The valve shall be operated by a manual handwheel control on the pump panel.

A label stating the following will be provided near the intake: "WARNING-SERIOUS INJURY OR DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED.

RIGHT INTAKE VALVE BLEEDER/DRAIN

A 3/4" air bleeder/drain valve shall be provided on the valve body to allow bleeding of air while the valve is closed.

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RIGHT INTAKE BLEEDER VALVE

A 1/4" bleeder valve shall be provided on the intake to bleed off air on the outer side of the valve.

TFT A-18 INTAKE RELIEF VALVE

A TFT A-18 intake relief/dump valve shall be provided in the supply side of the right side gated master intake 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 50 psi to 200 psi. The relief system shall be adjustable with a common type box end wrench. The pressure setting shall be preset by the apparatus manufacturer at 125 psi.

SHORTEN SUCTION TUBE - RIGHT SIDE

The right side master suction tube shall be shortened for use with externally installed hose appliances keeping the overall apparatus width to a minimum.

RIGHT SIDE MASTER INTAKE CAP

A 6" FNST LH chrome cap shall be provided on the right side master intake.

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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 an 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".

RIGHT SIDE FORWARD AUXILIARY INTAKE

An auxiliary intake shall be provided on the right side of the pump compartment in the forward 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.

The valve control shall be manually controlled at the intake location.

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

LEFT SIDE FORWARD AUXILIARY INTAKE

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

The intake valve and piping shall be 2 1/2".

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.

The valve shall be manually controlled from the pump operator's position.

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

RIGHT SIDE DISCHARGES

Two 2 1/2" and one 4" discharge shall be provided on the right side pump panel. The discharges shall be located one 2 1/2" forward of the intake in the upper position, one 4" forward of the intake in the lower position and one 2 1/2" located rear of the intake.

Two (2) right side 2 1/2" discharge(s):

The right side 2 1/2" discharge shall be manually controlled on the pump panel.

The discharge shall be equipped with a chrome plated brass or bright finish stainless steel discharge elbow with 2 1/2" MNST thread.

A 2 1/2" FNST x 1 1/2" MNST chrome plated reducer with cap and chain shall be provided.

One (1) right side 4" discharge(s):

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The right side 4" discharge shall be manually controlled from the pump operator's position with a gear actuated hand wheel control featuring position indication.

The discharge shall extend straight out of the apparatus with no elbow.

A Kochek model SKE44R 4" FNST x 4" locking swivel storz elbow adapter with a model ZCC407 4" blind cap and chain shall be provided.

LEFT SIDE DISCHARGES

Two 2 1/2" discharges shall be provided on the left side pump panel. The discharges shall be located in the forward section of the side pump panel, vertically stacked one above the other.

Two (2) left side 2 1/2" discharge(s):

The left side 2 1/2" discharge shall be manually controlled on the pump panel.

The discharge shall be equipped with a chrome plated brass or bright finish stainless steel discharge elbow with MNST thread.

A 2 1/2" FNST x 1 1/2" MNST chrome plated reducer and chain shall be provided.

PUMP CERTIFICATIONS

Where applicable, the following documents shall be provided with the completed apparatus:

- Pump manufacturer's certification of suction capability.
- Special condition certifications, if any.
- Pump manufacturer's approval for stationary pumping.
- Engine manufacturer's certified brake horsepower curve showing maximum governed speed.
- Pump manufacturer's certification of hydrostatic test.
- Pump manufacturer's certification of hydrodynamic test, if required. Certification of inspection and tests for the fire pump.

FIRE PUMP FAMILIARIZATION

Familiarization of the apparatus shall include the following items related to the fire pump system:

- Setting the parking brake, proper transmission gear and the fire pump engagement operations.
- Throttle control.
- Primer and tank-to-pump operation.
- Use of pressure control device.
- Tank refilling operations.
- Proper operation of discharge controls.
- Proper shutdown and draining of the system.

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TFT A-18 INTAKE RELIEF VALVE

A TFT model A-18 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 automatically restore to a non-relieving position when excessive pressure is no longer present. The pressure adjustment range shall be from 50 psi to 200 psi. The relief system shall be adjustable with a common type box end wrench.

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

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.

LOW POINT AUTO-DRAINS

Automatic drains shall be provided in low points of any discharge piping. The drain shall drain to the ground below its location. This drain shall be a supplementary drain and will not be considered the required 3/4" bleeder drain.

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. High pressure helix wire reinforced flexible 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 flexible couplings to compensate for apparatus flexing.

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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.

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.

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.

VICTAULIC COUPLINGS

Victaulic style couplings shall be used in the assembly of the pump piping system. The couplings shall allow flex in the piping and provide for a disassembly point for maintenance and repairs.

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.

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 LED display showing the level of the booster tank.

INNOVATIVE CONTROLS SL MINI TANK GAUGE - CAB

An Innovative Controls model SL MINI tank gauge shall be provided on or near the cab control panel in clear view from the driver's and officer's position.

The gauge shall have ultra-bright LED lights displaying 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 LED display showing the level of the booster tank.

INNOVATIVE CONTROLS SL PLUS TANK GAUGE - RIGHT SIDE

An Innovative Controls model SL Plus tank gauge shall be provided on the right side of the apparatus body or pump compartment. The gauge shall feature a 180 degree highly visible wide view ultra-bright LED display showing the level of the booster tank.

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TANK GAUGE PARK BRAKE DISABLE

The tank gauge(s) shall be disabled when the park brake is released so that the lights are not a distraction when the vehicle is in motion.

ICI DISCHARGE PRESSURE GAUGES

Unless otherwise specified, each 1 1/2" or larger discharge shall have an ICI 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 gauge dials shall be white with black markings. The needle shall match the color of the markings.

LIGHTED DISCHARGE PRESSURE GAUGES - BLUE

The discharge pressure gauges shall have blue backlighting.

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 four 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.

The color scheme for the discharge and intake labels shall be per NFPA A.16.9.1.

4" TANK TO PUMP

One (1) 4" tank to pump line(s) and valve(s) shall be provided between the tank and the pump.

The tank to pump valve shall be manually controlled from the pump operator's position with a gear actuated handwheel control featuring position indication.

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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.

AKRON HD-8800 SERIES VALVES

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

CROSSLAY PRECONNECTS

One 1 3/4" and one 2 1/2" preconnected crosslays shall be provided and located above the side mount pump panel.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. The 1 3/4" crosslay shall be piped using 2" piping or high pressure hose incorporating a 2" ball valve with the control on the side mount pump operator's panel. The 2 1/2" crosslay shall be piped using 2 1/2" piping or high pressure hose incorporating a 2 1/2" ball valve with the control on the side mount pump operator's panel.

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

The valve(s) shall be manually controlled on the pump panel.

There shall be one (1) 2" swivel elbows with 1 1/2" male NST hose thread connections provided on the cross lay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

3/4" manual drain valves shall be provided for all 1 3/4" crosslays. The valves shall have an all brass body with heavy duty neoprene seal.

2 1/2" CROSSLAY PRECONNECT(S)

One (1) 2 1/2" pre-connected crosslay(s) shall be provided and located above the side mount pump panel.

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 1/2" piping or high pressure hose incorporating a 2 1/2" ball valve with the control on the side mount pump operator's panel.

The #1 - 2 1/2" crosslay shall have the capacity to hold 150 feet of 2 1/2" or 3" fire hose and nozzle.

The valve(s) shall be manually controlled on the pump panel.

There shall be one (1) 2 1/2" swivel elbow with a 2 1/2" male NST hose thread connection provided on the 2 1/2" cross lay hose bed. The swivel shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

3/4" manual drain valves shall be provided for all 2 1/2" crosslays. The valves shall have an all brass body with heavy duty neoprene seal.

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CROSSLAY COMPARTMENT ENDS - BLACK WEBBING

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

HINGED ALUMINUM TREADBRITE CROSSLAY COVER

An aluminum treadbrite hinged cover shall be provided to cover the crosslay compartment. The cover shall have a full length polished stainless steel hinge. A chrome plated lift handle shall be provided on each end of the cover. Rubber protection blocks shall be provided in any area where the cover may come into contact with a painted surface.

PUMP COMPARTMENT

A modular pump compartment with side 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. A 1" flex joint shall be provided between the pump compartment 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 assembly 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 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.

PUMP COMPARTMENT RUNNING BOARDS

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

PUMP COMPARTMENT FRONT WALL

The front wall of the pump compartment shall be constructed of aluminum treadbrite which is bolted to the pump compartment assembly and removable.

PUMP COMPARTMENT RIGHT SIDE ACCESS DOOR - SIDE MOUNT

A brushed stainless steel hinged access door shall be provided on the right side of the pump compartment. The doors shall have pneumatic hold open devices and push button type flush latches.

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SIDE MOUNT BRUSHED STAINLESS STEEL PUMP PANEL

All controls and instruments shall be located on the left side of the apparatus. All discharge and intake valve controls shall be located on the left side pump panel.

BRUSHED STAINLESS STEEL PUMP PANELS

The left and right side pump panels shall be constructed of 304 2B marine grade brushed stainless steel with a #4 brushed and polished finish. The panels shall be held into place with two latches on the top to allow for easy removal of the panels.

The upper section of the left side pump panel shall be constructed of the same 304 2B marine grade stainless steel. The upper section shall be vertically hinged and have a chrome plated latch to secure the panel when closed.

LED SIDE MOUNT PUMP PANEL LIGHTS

The side mount pump panel shall be illuminated using a track type LED 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.

AUTOMATIC PUMP PANEL LIGHT ACTIVATION

The pump panel lights above the pump control panel shall function automatically with the pump shift activation.

LED RIGHT SIDE DISCHARGE/INTAKE PANEL LIGHTS

The right side discharge and intake panels shall be illuminated using a track type LED light assembly.

The light shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the hinged access door.

PUSH/PULL VALVE CONTROL HANDLES

The apparatus pump panel shall be equipped with Innovative Controls side mount valve controls to open/close the manually operated discharge valves.

The ergonomically designed ¼ turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and verbiage. The control rod shall provide a true positive lock to eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long term operation.

The control assembly shall include a decorative chrome plated zinc panel mounting bezel.

DISCHARGE VALVE CONTROL HANDLE LAYOUT

All discharge valve control handles shall be located in one or two horizontal lines across the mid-section of the pump panel. The control handles shall be located immediately below their corresponding pressure gauge for ease of pump operation.

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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.

Steel, painted or coated control rods are not acceptable. (No Exception).

DUNNAGE COMPARTMENT

A dunnage compartment shall be provided above the pump compartment. The compartment shall be as large as space permits. Usable space in the compartment may be effected by other apparatus components.

NOTE; The dunnage area shall be located in the forward section of the upper pump compartment.

The dunnage compartment shall have a webbing type cover. The cover shall be permanently fastened on the forward edge and have fasteners on the side and rear edges.

The dunnage compartment floor shall be aluminum treadbrite. Drain holes shall be provided.

Two LED lights shall be provided to illuminate the dunnage compartment. The lights shall function with the pump operators gauge panel lights.

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.

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BOOSTER TANK CAPACITY CERTIFICATION

The manufacturer shall certify the capacity of the booster tank. Certification shall be documented on the Manufacturer's Record of Construction document.

BOOSTER TANK CAPACITY 3,000 GALLONS

The poly booster tank shall have a capacity of 3,000 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 **12" x 24"** 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.

NOTE: Fill tower shall be "anti-surge" type. NO EXCEPTIONS.

6" TANK OVERFLOW

A 6" 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 remoted 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.

100" BODY WIDTH

The apparatus body shall be 100" wide from side to side measuring from the rub rail mounting surface.

HOSE BED - 72" WIDE

The hose bed shall be 72" wide from side to side and a minimum of 12" tall.

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.

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HOSE BED DIVIDER(S)

There shall be one (1) 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 with a 1" aluminum rub plate.

HOSE BED COVER WITH SHOCK CORD 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 it comes into contact with the upper rear corners of the hose bed dividers.

The cover shall be secured to the apparatus using heavy duty shock cords which are hooked to the sides of the apparatus using cast aluminum diamond hooks. The hooks shall require only a single fastener to hold them in place with an aluminum post to keep the hook from moving. The front edge of the cover shall be secured to the apparatus using lift dot fasteners. The rear of the cover shall be secured to the apparatus using positive mechanical latches.

HOSE BED COVER - RED

The hose bed cover shall be red.

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 59.75" 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 double vertically hinged doors.

DRIVER'S SIDE LOW COMPARTMENT BEHIND THE REAR WHEELS

A low compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 36.5" high x 32" 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 a single vertically hinged door.

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 36.5" high x 59.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 10" usable depth.

The compartment shall have double vertically hinged doors.

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PASSENGER'S SIDE LOW COMPARTMENT BEHIND THE REAR WHEELS

A low compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 36.5" high x 32" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 10" useable depth.

The compartment shall have a single vertically hinged door.

DRIVER FRONT WHEELWELL COMPARTMENT

There shall be a compartment located in the driver's side wheel area ahead of the rear axle to hold one set of wheel chocks.

A safety chain shall be provided across the door opening. The safety chain shall be designed to prevent the chocks from sliding out of the compartment if the door is not latched or fails.

DRIVER'S SIDE REAR OF WHEELWELL SPARE CYLINDER COMPARTMENT

A compartment shall be provided in the wheel area behind the rear axle on the driver's side to hold a total of two (2) spare SCBA cylinders.

The compartment shall be 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 WHEELWELL SPARE CYLINDER COMPARTMENT

A compartment shall be provided in the wheel 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 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 REAR OF WHEELWELL SPARE CYLINDER COMPARTMENT

A compartment shall be provided in the wheel area behind the rear axle on the passenger's side to hold a total of two (2) spare SCBA cylinders.

The compartment shall be 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.

WHEELWELL 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.

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WHEELWELL 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.

REAR NEWTON 10" STAINLESS STEEL DUMP VALVE

A Newton model 1050 10" stainless steel dump valve shall be provided on the rear of the apparatus. The valve shall be electrically operated.

REAR DUMP VALVE EXTENSION CHUTE - ELECTRIC

A Newton 18" stainless steel electrically operated telescoping extension chute shall be provided and attached to the dump valve with stainless steel fasteners.

REAR DUMP VALVE "IN-CAB" CONTROL

The rear dump valve shall have a control in the cab.

10" LH driver Newton stainless dump valve ADDL COSTS

DRIVER SIDE DUMP VALVE – CENTER OF TANDEM

The left side dump valve shall be located between the tandem rear axles.

DRIVER SIDE DUMP VALVE COVER DOOR

The body opening for the driver's side dump valve shall be covered with a brushed stainless steel door.

DRIVER SIDE NEWTON 10" STAINLESS STEEL DUMP VALVE

A Newton model 1050 10" stainless steel dump valve shall be provided on the driver's side of the apparatus. The valve shall be electrically operated.

DRIVER SIDE DUMP VALVE EXTENSION CHUTE - ELECTRIC

A Newton 18" stainless steel electrically operated telescoping extension chute shall be provided and attached to the driver's side dump valve with stainless steel fasteners.

DRIVER SIDE DUMP VALVE "IN-CAB" CONTROL

The driver side dump valve shall have a control in the cab.

PASSENGER SIDE DUMP VALVE – CENTER OF TANDEM

The right side dump valve shall be located between the tandem rear axles.

PASSENGER SIDE DUMP VALVE COVER DOOR

The body opening for the passenger's side dump valve shall be covered with a brushed stainless steel door.

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PASSENGER SIDE NEWTON 10" STAINLESS STEEL DUMP VALVE

A Newton model 1050 10" stainless steel dump valve shall be provided on the passenger's side of the apparatus. The valve shall be electrically operated.

PASSENGER SIDE DUMP VALVE EXTENSION CHUTE - ELECTRIC

A Newton 18" stainless steel electrically operated telescoping extension chute shall be provided and attached to the passenger's side dump valve with stainless steel fasteners.

PASSENGER SIDE DUMP VALVE "IN-CAB" CONTROL

The passenger's side dump valve shall have a control in the cab.

2 1/2" RIGHT REAR TANK FILL

One 2 1/2" rear tank fill shall be provided on the right rear of the apparatus. The fill shall be located to the right and above the top of the dump valve.

The fill valve shall be connected to the tank with 2-1/2" stainless steel pipe.

An Akron 8825 series valve with TSC handle shall be utilized on the tank fill.

The tank fill shall be provided with a 2 1/2" FNST swivel connection, 30 degree elbow and a 2 1/2" chrome plated plug and chain.

TANK FILL RATE LABEL

A permanent label shall be provided near any tank fill location clearly stating the following tank fill limitations and procedures:

- Do not exceed 100 psi when filling tank.
- Fill rate in GPM = tank size capacity.
- For tanks over 1000 gallons, do not exceed maximum fill rate of 1,000 GPM.
- Gate back fill when water reaches top of the tank.

The label shall also state that failure to follow procedure could result in over-pressurization, premature tank failure and possibly void tank warranty.

2 1/2" LEFT REAR TANK FILL

One 2 1/2" rear tank fill shall be provided on the left rear of the apparatus. The fill shall be located to the left and above the top of the dump valve.

The fill valve shall be connected to the tank with 2-1/2" stainless steel pipe.

An Akron 8825 series valve with TSC handle shall be utilized on the tank fill.

The tank fill shall be provided with a 2 1/2" FNST swivel connection, 30 degree elbow and a 2 1/2" chrome plated plug and chain.

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TANK FILL RATE LABEL

A permanent label shall be provided near any tank fill location clearly stating the following tank fill limitations and procedures:

- Do not exceed 100 psi when filling tank.
- Fill rate in GPM = tank size capacity.
- For tanks over 1000 gallons, do not exceed maximum fill rate of 1,000 GPM.
- Gate back fill when water reaches top of the tank.

The label shall also state that failure to follow procedure could result in over-pressurization, premature tank failure and possibly void tank warranty.

STAINLESS STEEL APPARATUS BODY CONSTRUCTION

The entire apparatus body shall be formed by shearing and bending fire apparatus quality stainless steel 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 shear edges prior to bending the metal. After shearing and bending, the body shall be assembled on a jig table that is designed to hold all apparatus body parts securely in place to insure an accurately built apparatus body. After the fabricated body parts are secured on the jig, the body shall be welded together using a wire welder to insure proper weld penetration.

The entire apparatus body shall be welded together using only unexposed welding methods. No welds shall be visible on the exterior of the apparatus body. All welds on the exterior of the body shall be ground flush and filled with automotive body filler. Metal or rubber trims shall not be used to hide welds or seams.

COMPARTMENT FLOORS

All compartment floors shall be constructed of fire apparatus quality stainless sheet steel. The floors shall have a minimum 1" upward flange on the rear wall of the compartment to prevent any possible moisture accumulation in this area. The sides of the floor must be welded the full depth of the compartment to eliminate moisture accumulation. These welds must be placed on the bottom exterior of the compartment so that they are not visible on the interior of the compartment. The front edge of the compartment shall consist of a minimum of four 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 upper compartments, and the rear face compartment. Any exception to this requirement will cause immediate rejection of bid.

COMPARTMENT REAR WALLS/BODY SIDES

The compartment rear walls and the apparatus body sides shall be constructed of fire apparatus quality stainless sheet steel. 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 to be welded together shall not be implemented.

SIDE/REAR COMPARTMENT TOPS AND CEILINGS

The side and rear compartment tops and ceilings shall be constructed of fire apparatus quality stainless sheet steel. The ceiling of the lower side compartments in the extended depth section shall also be constructed of this material.

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FENDERWELLS

The left and right side rear fender wells shall be constructed of fire apparatus quality stainless steel sheet steel. 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. The fender wells shall be thoroughly cleaned and sealed.

PAINTED FENDERWELLS

The fender wells shall be finish painted the primary exterior color of the apparatus.

Two prevent potential corrosion points, aluminum treadbrite or bolted on overlapping panels shall not be implemented in the construction of the apparatus body.

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 polyethylene material and shall be fully removable for chassis suspension access.

REMOVABLE INNER FENDER LINER - NO EXCEPTION

To prevent the accumulation of potential corrosive materials in the fender well area, there shall be no exception to the removable 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.

COMPARTMENT TOP OVERLAY

The compartment tops shall be overlaid with fire apparatus quality aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus. It shall be fitted on the apparatus body with all holes drilled prior to painting. **Aluminum treadbrite that is welded or bolted to the top of the compartments and masked off during the paint process is not acceptable.** The back side of the aluminum treadbrite shall be fully covered with a high temperature polyurethane based sealer.

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COMPARTMENT TOP WARNING LABEL - FAMA26

A permanent label shall be provided on the front and rear of the compartment tops on both sides warning that the area is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE

The rear step shall be constructed of NFPA complaint bright finish aluminum treadbrite.

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.

DO NOT RIDE ON REAR STEP WARNING LABEL - FAMA24

A permanent label shall be provided at the rear step area stating that riding in this area while the vehicle is in motion is prohibited and shall warn of the potential dangers, including injury or death, in doing so.

PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT

After the apparatus body has been fully assembled and all mounting holes, etc. have been either punched, machined, or drilled, the apparatus shall be fully disassembled for the paint process.

Masking or taping off of any portion of the apparatus during the paint process shall not be acceptable. All compartment doors shall be painted separate from the apparatus body.

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

PAINT PROCESS:

The apparatus body paint procedure shall consist of an eight (8) step finishing process as follows:

1. Surface Preparation: All exposed metal surfaces on the apparatus exterior shall be thoroughly cleaned as per SSPC-SP1. All imperfections on the exterior metal surface shall be removed or filled prior to the priming process. All exposed metal shall be thoroughly abraded using a dual orbital air power sander as per SSPC-SP3.
2. Cleaning and Treatment: All surfaces shall be chemically cleaned using PPG DX436 was and grease remover cleaning agent to remove all dirt, oil, grease and metal oxides to ensure proper adhesion as per SSPC-SP1.
3. Primer Application: PPG F3993 primer shall be applied to the bare metal as per bulletin DFT-041.
4. Primer/Surfacer Application: PPG F3975 primer/surfacer shall be applied to the primer.
5. Dual Orbital Sanding: The primer/surfacer shall be thoroughly sanded to a superior smooth surface.

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6. Cleaning: After sanding in step #5, all surfaces shall be chemically cleaned again using PPG DX394 wash and grease remover to remove all oil and dirt. The surface to be painted shall be clean of all oil, grease, and dirt to ensure proper adhesion as per SSPC-SP1.
7. Primer Sealer Application: PPG Delfleet F3975 two component urethane primer sealer shall be applied over the thoroughly sanded and cleaned primer/surfacer as per bulletin DFT-054.
8. Topcoat Application: Two coats of PPG Delfleet FBCH basecoat color two component polyurethane paint shall be applied to the primer sealer as per bulletin DFT-001. The base color shall be followed by two coats of PPG Delfleet F3906 two component polyurethane clear coat finish as per bulletin DFT-055.

DRY FILM PAINT TESTS

The apparatus manufacturer shall perform dry film readings on the painted apparatus to insure adequate paint thickness. The total dry film readings shall be a minimum of 6.4 mils average. These readings must be measured with an ETG ferrous/nonferrous digital dry film thickness measurement instrument. Readings must be taken from a minimum of 12 separate locations on the apparatus body. The apparatus manufacturer shall record these tests and make them available to the purchaser upon request.

PAINT PROCESS SYSTEM AUDIT

The apparatus manufacturer shall strictly follow the documented paint application procedure as provided by the paint manufacturer. The paint manufacturer shall also perform an annual audit of the paint process.

APPARATUS BODY PAINTED OFF CHASSIS

The apparatus body shall be painted prior to being mounted on the chassis. Painting of the body off the chassis will prevent primer and paint overspray on the cab, frame rails and other critical components of the apparatus and drivetrain.

There shall be no exception to this requirement.

PPG CERTIFIED 10 YEAR LIMITED PAINT WARRANTY

The apparatus body exterior finish paint shall have a 10 year limited warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided to the end user. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable.

PPG Commercial OEM Product Warranty Coverage:

Warranty Inclusions:

- Delamination of the topcoat and/or other layers of paint.
- Cracking or checking due to failure of the product.
- Excessive loss of gloss caused by cracking, checking and hazing.

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Warranty Exclusions:

- Paint deterioration caused by blisters, bubbles, flaking or other degradation due to rust or corrosion originating from the substrate.
- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing, or aggressive mechanical wash systems.
- Paint deterioration caused by abuse, scratches, chips, gloss reduction, accidents, acid rain, chemical fallout, road treatment materials/chemicals or acts of nature.
- Any paint that was not applied by Toyne, Inc.
- Claims presented without proper Warranty documentation.
- Failure on finishes performed by Non-PPG Commercial Certified Technicians.
- Failure on finishes due to inadequate film builds.
- Failures due to improper cleaning or surface preparation or failure to follow the product use instructions.

THESE ARE THE ONLY WARRANTIES THAT PPG MAKES, AND ALL OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATIONS, ANY WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG.

APPARATUS BODY COMPARTMENT INTERIOR FINISH

The interior of all apparatus body compartments shall be finished with a gray textured coating.

NPFA SLIP RESISTANCE CERTIFICATION

Any materials used as a stepping, standing or walking surface shall be certified to be compliant with NFPA 1901 15.7.4. Documentation shall be provided with the completed apparatus.

STAINLESS STEEL SUB FRAME

The tank cradle and body substructure shall be constructed of high strength structural stainless steel. The entire 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.

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.

30 YEAR SUBSTRUCTURE WARRANTY

The tank cradle and body substructure shall have a 30 warranty covering failure due to structural design error.

This warranty shall be in effect for 30 years after delivery of the apparatus to the customer. **NO EXCEPTION.**

LIFETIME SUBSTRUCTURE CORROSION WARRANTY

The tank cradle and body substructure shall have a lifetime warranty covering failure due to corrosion perforation. **NO EXCEPTION.**

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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.

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 - STAINLESS STEEL

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 fire apparatus quality stainless steel sheet material. 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 allowing full unobstructed access to the compartment.

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 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.

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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 be 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.

COMPARTMENT DOOR RUBBER BUMPERS

Rubber bumpers shall be provided on the exterior of any hinged door that may come into contact with another door when opened.

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.

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.

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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.

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 help minimize electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

RUBRAILS - 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 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.

STAINLESS STEEL SILL PLATES

Four (4) brushed stainless steel sill plates shall be provided and installed on the lower door jamb(s) of designated compartments.

Two NFPA compliant folding steps shall be provided on the right side front compartment face.

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.

Four NFPA compliant folding steps shall be provided on the left side front compartment face.

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.

Four NFPA compliant folding steps shall be provided on the rear of the apparatus on the right side.

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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.

Four NFPA compliant folding steps shall be provided on the rear of the apparatus on the left side.

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.

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.

FRAME RAIL TOW EYES - CHROME PLATED

Two 3/4" chrome plated steel tow eyes shall be attached direct to the end of the frame rails on the rear of the apparatus. The eyes shall have a minimum of a 3" diameter pass through. Each eye shall be attached to the frame rail with a minimum of four 3/4" hardened steel bolts with locking nuts.

HARD SUCTION MOUNTINGS

Hard suction troughs shall be provided on the left side of the apparatus above the low side compartments. The hard suction shall be held in place with velcro straps. Three troughs shall be provided.

Brushed stainless steel scuff plates shall be provided on the back wall near the hard suction handles.

ALUMINUM TREADBRITE FOLD DOWN PORTABLE TANK RACK - RIGHT SIDE

A manual swing down hinged portable tank rack shall be provided on the right side of the apparatus above the low side compartments. The rack shall be constructed of .125 inch aluminum treadbrite. The rack shall have two latches to hold the rack in the raised or travel position. The latches shall be located one on each end of the rack. Large rubber pads shall be provided and mounted on the lower rubrail of the apparatus body to keep the rack from contacting any surface of the apparatus body when the rack is lowered. The rack shall hinge down on heavy duty polished stainless steel hinges.

PORTABLE TANK RACK WARNING LABEL - FAMA21

A permanent label shall be provided on the front and rear area of the portable tank rack to provide warning to stay clear of area around the moving rack and that the equipment could cause injury or death.

DUAL COMPARTMENT SHELF TRACKS - ALUMINUM

Four (4) sets consisting of four heavy duty aluminum adjustable tracks shall be provided in specified compartments, two for each end of shelf.

The tracks shall not be welded to the apparatus body.

Exeter VFD – Toyne Proposal Specifications

FULL DEPTH COMPARTMENT SHELVING

There shall be four (4) full depth shelves provided. The shelves shall be constructed of 1/8" smooth aluminum with a 2" upward bend on the front and rear edges.

NOTE: The shelves shall be 8" depth.

The shelves shall have a random orbit sanded finish.

ADJUSTABLE TRACK FOR SCBA BRACKETS

One (1) set(s) consisting of two heavy-duty horizontally mounted adjustable tracks shall be provided in specified compartments. The tracks shall allow SCBA brackets to be mounted to the compartment wall and be adjustable.

The tracks shall be removable and shall not be welded to the apparatus body.

SELF CONTAINED BREATHING APPARATUS BRACKET(S)

There shall be four (4) SCBA bracket(s) provided. The cylinder clips shall be spring steel for greater durability and long life. A model 39002 restraint strap shall be provided for each bracket. (12-14-17).

ROLL OUT TRAY

There shall be one (1) roll out tray(s) provided. The tray shall be constructed of 3/16" aluminum. The tray shall have a 2" upward bent lip on all four sides of the tray.

250 lb. total capacity heavy duty ball bearing type telescoping slides shall be provided.

A positive latching mechanism shall be provided to hold the tray in either the fully open or fully closed position.

COMPARTMENT INTERIOR FEATURES

Driver Forward Wheels

- One (1) adjustable shelf
- One (1) adjustable roll out tray
- Three (3) SCBA Brackets

Driver Rearward Wheels

- One (1) adjustable shelf

Passenger Forward Wheels

- One (1) adjustable shelf

Passenger Rearward Wheels

- One (1) adjustable shelf

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:

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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:

- Propulsion engine and transmission.
- The clearance and marker lights.
- Communication equipment (5 amp default).
- Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.
- Minimum warning lights required for "blocking right of way" mode.
- The current to simultaneously operate fire pump and all specified electrical devices.
- 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, those items shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

An "alternator performance test at idle" test shall be completed. The minimum continuous electrical load shall be activated with the engine running at idle speed. When the engine temperature has been stabilized at idle speed, the battery system shall be tested to detect any battery discharge current.

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

An "alternator performance test at full load" test shall be completed. The minimum continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed for a 2 hour period.

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 does not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every 3" 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.

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

Removable access panels shall be provided to provide access to the wire and electrical components.

MULTI-PLEXED 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 an electrical harness utilizing Deutsch 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

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.

Exeter VFD – Toyne Proposal Specifications

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.

VMUX WARRANTY

The VMUX multiplexed electrical system shall be warranted, under normal use and service, for a period of four years. One year parts and labor and the remaining three years parts only.

AUTOMATIC HIGH IDLE FUNCTION

An automatic high idle system shall be installed and will activate whenever the system voltage drops below a determined voltage. The high idle will remain on until adequate voltage is achieved.

MASTER BATTERY DISCONNECT

A Cole Hersee master battery disconnect switch shall be provided and mounted within easy reach of the driver when entering the apparatus.

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.

REAR LICENSE PLATE LIGHT/BRACKET

A chrome plated LED license plate light shall be provided on the rear of the apparatus.

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 LED 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.

EXTENSION CLEARANCE LIGHTS - LED

There shall be a rubber arm style extension LED marker lights installed one each side of the apparatus on the rear corners of the body. These lights shall help the driver locate the rear of the apparatus during driving operations. The lights shall have bulbs facing both forward and to the rear. The forward facing lights shall be amber in color and the rear facing lights shall be red in color.

MID-MOUNTED SIDE TURN SIGNAL - LED

An amber LED side turn signal shall be provided in the mid-section area of the apparatus on both sides.

Exeter VFD – Toyne Proposal Specifications

LED PUMP COMPARTMENT LIGHTS (2)

Two LED compartment lights shall be provided to illuminate the pump compartment. The lights shall function with the pump operators gauge panel lights.

DUAL TRACK TYPE LED COMPARTMENT LIGHTING

Each apparatus body compartment shall have two track type LED 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.

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

DOOR AJAR INDICATOR - LED

A red LED flashing light shall be provided on the cab dash area in clear view of the driver to warn of an open compartment or personnel door.

A label shall be provided that states "Do Not Move Apparatus When Light Is On".

WHEEL WELL COMPARTMENT DOOR AJAR INDICATOR

All wheel well compartments door shall be connected to the door ajar system to indicate of an open door.

WHELEN M6 QUAD-CLUSTER TAILLIGHTS - LED

Whelen M6BTT 4" x 6" LED taillights and M6T 4" x 6" LED turn signals shall be provided. The backup lights shall be M6BUW 4" x 6" clear LED's.

An additional space shall be provided in the quad-cluster for the lower C warning lights.

M6FCV4 polished trim housings shall be provided.

BACKUP LIGHTS PARK FUNCTION

The backup lights shall automatically activate when the park brake is set to provide work lighting at the rear of the apparatus.

Exeter VFD – Toyne Proposal Specifications

BACKUP ALARM

A minimum 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.

CONSOLE MOUNTED CONTROL PANEL

A control console shall be provided between the driver's and officer's seats for all warning/auxiliary light controls and pump shift.

WARNING LIGHT SWITCH - SINGLE

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.

CENTER CONSOLE MAP POCKET

A storage pocket shall be provided on the rear of the console for storing books, maps, etc.

CENTER CONSOLE CONSTRUCTION MATERIAL

The console shall be constructed of aluminum treadbrite.

CENTER CONSOLE PANEL MATERIAL

The console panel shall be constructed of brushed stainless steel.

ZONE A UPPER WARNING LIGHTING

A Whelen F4N0QLED lightbar shall be mounted on the top of the cab roof. The lightbar shall be 60" in length and mounted with low profile stainless steel brackets.

Each side of the lightbar shall have one red end LED, one red corner LED and two front linear LED's (one red and one white).

The lenses on the Officer's and Driver's side shall be red, except for the white LED's.

Exeter VFD – Toyne Proposal Specifications

ZONES C, B, & D UPPER WARNING LIGHTING

Zone C Rear Upper Lighting

Two Whelen model RB6PAP beacons shall be provided one on each side on the rear. Both sides shall be amber.

Zone B Right Side Upper Lighting

This area shall be covered by the outboard rotator of the lightbar in Zone A upper lighting and the RB6PAP beacon in Zone C rear upper lighting.

Zone D Left Side Upper Lighting

This area shall be covered by the outboard rotator of the lightbar in Zone A upper lighting and the RB6PAP beacon in Zone C rear upper lighting.

FRONT GRILLE WARNING LIGHTS

Two Whelen model M6R red LED 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 LED 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 lights.

MID-SECTION WARNING LIGHTS - SIDES

One Whelen LINZ6 red LED light shall be provided on each side in the mid-section of the apparatus. A chrome bezel shall be provided around the lights.

SIDE FACING LOWER REAR WARNING LIGHTS

One Whelen LINZ6 red LED 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 M6R red LED 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.

Exeter VFD – Toyne Proposal Specifications

SIREN NOISE WARNING LABEL - FAMA42

A permanent label shall be provided inside the driver's door warning of potential injury that could be received from the noise of the siren. The label shall also state safety precautions that should be taken when the siren is in use.

UNITY AG-R-P64SLC LED DECK/HOSE BED LIGHTS

Two Unity model AG-R-P46SLC LED chrome plated lights shall be provided and mounted on the rear of the apparatus, one each side. The lights shall be controlled by light head mounted switches and shall be capable of 360 degrees of rotation and 90 degrees above and below horizontal tilt.

The lights shall be subject to load management shedding to comply with NFPA 1901.

OPTICAL WARNING LIGHT CERTIFICATION

The emergency warning light system shall be certified using one of the available methods provided for in NFPA 1901 13.8.16.

SIREN CERTIFICATION

The siren manufacturer shall certify the siren to NFPA 1901 13.9.1.1.

ELECTRICAL SYSTEM PERFORMANCE CERTIFICATION

A written load analysis and the results of the electrical system performance test shall be provided with the completed apparatus. The load analysis shall include the following:

- Nameplate rating of the alternator.
- The alternator rating under the conditions specified in NFPA 1901 13.3.2.
- Each of the component loads specified in NFPA 1901 13.3.3 that make up the minimum continuous electrical load.
- Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load.
- Each individual intermittent electrical load.

BATTERY JUMPER STUDS

Battery jumper studs shall be provided in close proximity to the battery mounting location.

12 VOLT ACCESSORY CONNECTION IN COMPARTMENT

A 12 volt accessory connection shall be provided in (1) apparatus body compartment(s) for charging accessory items.

A distribution panel shall be provided at the mounting location. The panel shall provide up to six 5 amp individually fused connection points. The panel shall be powered from the main apparatus electrical system and shall include a 30 amp master breaker.

Exeter VFD – Toyne Proposal Specifications

FEDERAL SIGNAL Q2B MECHANICAL SIREN - RECESSED MOUNTED

A Federal Signal model Q2B recess mounted chrome plated mechanical siren shall be provided and mounted recessed in the front bumper extension. The siren shall have a maximum sound output of 123 db. at 10'.

MECHANICAL SIREN ACTIVATION SWITCHES

Two floor mounted pad switches shall be provided to operate the mechanical siren, one on the right side and one on the left side.

MECHANICAL SIREN BRAKE

A siren brake push button switch shall be provided on the dash or console.

SIREN NOISE WARNING LABEL - FAMA42

A permanent label shall be provided inside the driver's door warning of potential injury that could be received from the noise of the siren. The label shall also state safety precautions that should be taken when the siren is in use.

WHELEN M6ZC SCENE LIGHTS

Eight Whelen M6ZC Gradient LED scene lights shall be provided and mounted three on each side and two 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).

WHELEN PIONEER BROW LIGHT - 12 VOLT

One (1) Whelen Pioneer model PFS2 dual brow light(s) shall be mounted on the apparatus. The lighthead(s) shall be a 150 watt 12 volt LED and shall draw 12.8 amps each.

A PBA0127/130 brow mounting bracket shall be provided.

WHELEN PIONEER PFS2 12 VOLT LED TELESCOPING LIGHT

Two (2) Whelen Pioneer PFS2 lighthead(s) mounted on 3000 Series side mounted bottom raise telescoping pole(s) shall be mounted on the apparatus. The lighthead(s) shall be a dual panel type 12 amp, 150 watt, creating 16,200 lumens.

The light(s) shall have an off/on switch on the lighthead. The pole shall be side mount bottom raise with 2" pole offset brackets.

12 VOLT STELESCOPING LIGHT ACTIVATION

All 12 volt telescoping scenelights shall be switched from a single pump panel mounted switch.

Exeter VFD – Toyne Proposal Specifications

SMART GOLD ENCAPSULATED LETTERING

A maximum of sixty (60) 4" maximum height Smart Gold simulated gold leaf, Mylar encapsulated, self-adhesive lettering 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.

1"-4"-1" NFPA REFLECTIVE STRIPE

A 4" reflective stripe shall be applied to the apparatus.

A 1" gap shall be provided on both the top and bottom of the 4" stripe followed by a 1" reflective stripe above and below the upper and lower gap.

A single 6" stripe shall be applied to the front if space does not permit for the 3 stripe pattern.

The striping shall be applied to a minimum of 50% of the length of the apparatus on each side 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.

SECONDARY UPPER REFLECTIVE STRIPE COLOR - WHITE

The secondary upper reflective stripe shall be 680-10 white.

SECONDARY LOWER REFLECTIVE STRIPE COLOR - WHITE

The secondary lower 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

A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating red and fluorescent yellow green 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.

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"AS BUILT" APPARATUS BODY OWNERS MANUALS (2)

Two "as built" apparatus body owner's manual USB drives 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 drive. The USB shall be "read only" and shall not allow modification.

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

FAMA FIRE APPARATUS SAFETY GUIDE

One (1) FAMA Fire Apparatus Safety Guide(s) shall be provided with the completed apparatus.

STATEMENT OF EXCEPTION - NFPA MISCELLANEOUS REQUIRED EQUIPMENT

The customer shall be responsible for providing all NFPA required miscellaneous equipment that is not contained within these specifications. All required equipment must be properly installed on the apparatus and in working condition prior to the apparatus being placed into service.

FAMILIARIZATION AND DEMONSTRATION

Upon completion of the new apparatus, an authorized properly trained representative of the manufacturer shall perform a "Familiarization and Demonstration" overview of the apparatus and related components.

The Department shall provide the representative with a written list, by full proper names, of the individual(s) that are to receive the overview. Upon completion of the overview, each person in attendance will be required to acknowledge, by signature, that they understand the operation of the apparatus and all related components.

CHASSIS FAMILIARIZATION

Familiarization of the apparatus shall include the following:

- How to locate gauges or indicators and check all fluid levels and operational use of the apparatus.
- How to tilt the chassis cab or hood assembly for access to the engine, fire pump (if applicable), or aerial control (if applicable), or any other device to allow access to fluids or for required maintenance.
- Interior cab controls, instruments, mirrors, safety devices or alarms, brake operations, transmission control, pump controls (if applicable) exhaust regeneration (if applicable), seat adjustments, warning light engagement and other operational equipment.

POST ACCEPTANCE TRAINING REQUIREMENTS

After apparatus acceptance, the Department shall be responsible for ongoing training of personnel. The Department shall not allow untrained or undertrained personnel to operate the apparatus or any included feature of the apparatus.

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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.

** END OF BODY SPECIFICATIONS**

Exeter VFD – Toyne Proposal Specifications

FREIGHTLINER SPECIFICATION PROPOSAL

Vehicle Configuration

M2 112 CONVENTIONAL CHASSIS
2019 MODEL YEAR SPECIFIED
SET BACK AXLE - TRUCK

General Service

FIRE/EMERGENCY SERVICE
EMERGENCY VEHICLES BUSINESS
SEGMENT
FREIGHTLINER LEVEL II WARRANTY
EXPECTED FRONT AXLE LOAD: 16000
lbs
EXPECTED REAR DRIVE AXLE LOAD:
48000 lbs
EXPECTED GROSS VEHICLE
CAPACITY: 64000 lbs

Engine

DETROIT DD13 12.8L 505 HP @ 1625
RPM, 1900 GOV RPM, 1850 LB/FT @ 975
RPM
VIRTUAL TECHNICIAN, DETROIT
CONNECT PORTAL ACCESS
INCLUDES 2 YEAR SUBSCRIPTION

Engine Equipment

2016 ONBOARD DIAGNOSTICS/2010
EPA/CARB/GHG17
NFPA COMPLIANT EMBER SCREEN
AND FIRE RETARDANT DONALDSON
AIR CLEANER
DR 12V 275 AMP 40-SI BRUSHLESS
PAD ALTERNATOR WITH REMOTE
BATTERY VOLTAGE SENSE
(3) ALLIANCE MODEL 1231, GROUP 31,
12 VOLT MAINTENANCE FREE 3375
CCA THREADED STUD BATTERIES
BATTERY BOX FRAME MOUNTED
BOC
WIRE GROUND RETURN FOR
BATTERY CABLES WITH
ADDITIONAL FRAME GROUND
RETURN

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POSITIVE LOAD DISCONNECT WITH
CAB MOUNTED CONTROL SWITCH
MOUNTED OUTBOARD DRIVER
BW MODEL BA-921 19.0 CFM SINGLE
CYLINDER AIR COMPRESSOR WITH
SAFETY VALVE
JACOBS BRAKE WITH (2) SWITCHES;
(1) ON/OFF AND (1)
LOW/MEDIUM/HIGH BRAKING
RH MTD HORIZONTAL
AFTERTREATMENT WITH RH
TAILPIPE
BORG WARNER (KYSOR) REAR AIR
ON/OFF ENGINE FAN CLUTCH
AUTOMATIC FAN CONTROL
FULL FLOW OIL FILTER
1400 SQUARE INCH RADIATOR WITH
AUXILIARY ENGINE COOLING
ANTIFREEZE TO -34F, OAT (NITRITE
AND SILICATE FREE) EXTENDED LIFE
COOLANT
GATES BLUE STRIPE COOLANT
HOSES OR EQUIVALENT
CONSTANT TENSION HOSE CLAMPS
FOR COOLANT HOSES
MITSUBISHI 12V MOD 3.175-DP60
STARTER WITH INTEGRATED
MAGNETIC SWITCH

Transmission

ALLISON 4000 EVS 5 SPD AUTOMATIC
TRANSMISSION WITH PTO
PROVISION

Transmission Equipment

MAGNETIC PLUGS, ENGINE DRAIN,
TRANSMISSION DRAIN, AXLE(S) FILL
AND DRAIN
PUSH BUTTON ELECTRONIC SHIFT
CONTROL, DASH MOUNTED
TRANSMISSION PROGNOSTICS -
ENABLED 2013
WATER TO OIL TRANSMISSION
COOLER

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TRANSMISSION OIL CHECK AND FILL
WITH ELECTRONIC OIL LEVEL
CHECK
SYNTHETIC TRANSMISSION FLUID
(TES-295 COMPLIANT)

Front Axle and Equipment

DETROIT DA-F-16.0-5 16,000# FL1 71.0
KPI/3.74 DROP SINGLE FRONT AXLE
MERITOR 16.5X6 Q+ CAST SPIDER
CAM FRONT BRAKES, DOUBLE
ANCHOR, FABRICATED SHOES
FIRE AND EMERGENCY SEVERE
SERVICE, NON-ASBESTOS FRONT
LINING
FRONT BRAKE DUST SHIELDS
FRONT OIL SEALS
BENDIX VERSAJUST AUTOMATIC
FRONT SLACK ADJUSTERS
TRW TAS-85 POWER STEERING

Front Suspension

16,000# TAPERLEAF FRONT
SUSPENSION
FRONT SHOCK ABSORBERS

Rear Axle and Equipment

48,000 LB FIRE/EMERGENCY SERIES
TANDEM REAR AXLE
IRON REAR AXLE CARRIER WITH
STANDARD AXLE HOUSING
MXL 18T MERITOR EXTENDED LUBE
MAIN DRIVELINE WITH HALF ROUND
YOKES
DRIVER CONTROLLED TRACTION
DIFFERENTIAL - BOTH TANDEM
REAR AXLES
MERITOR 16.5X7 Q+ CAST SPIDER
HEAVY DUTY CAM REAR BRAKES,
DOUBLE ANCHOR, FABRICATED
SHOES
FIRE AND EMERGENCY SEVERE
SERVICE NON-ASBESTOS REAR
BRAKE LINING

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REAR BRAKE DUST SHIELDS
REAR OIL SEALS
BENDIX VERSAJUST AUTOMATIC
REAR SLACK ADJUSTERS

Rear Suspension

TUFTRAC 52,000# REAR SPRING
SUSPENSION
56 INCH AXLE SPACING

Brake System

AIR BRAKE PACKAGE
WABCO 4S/4M ABS WITH TRACTION
CONTROL & ESC
STANDARD AIR SYSTEM PRESSURE
PROTECTION
BW AD-9 BRAKE LINE AIR DRYER
WITH HEATER
CUSTOM STEEL AIR BRAKE
RESERVOIRS
BW DV-2 AUTO DRAIN VALVE WITH
HEATER - WET TANK

Electrical Connections

UPGRADED CHASSIS MULTIPLEXING
UNIT
UPGRADED BULKHEAD
MULTIPLEXING UNIT

Wheelbase & Frame

(235 INCH) WHEELBASE / (169 INCH)
CA
11/32X3-1/2X10-15/16 INCH STEEL
FRAME 120KSI
¼" C-CHANNEL INNER FRAME
REINFORCEMENT
(107 INCH) REAR FRAME OVERHANG

Chassis Equipment

THREE-PIECE 14 INCH CHROME
STEEL BUMPER WITH COLLAPSIBLE
ENDS AND CUTOUT FOR SPEAKER
REMOVABLE FRONT TOW HOOKS
FENDER & FRONT OF HOOD MTD
FRONT MUDFLAPS
GRADE 8 THREADED HEX HEADED
FRAME FASTENERS

Exeter VFD – Toyne Proposal Specifications

Fuel Tanks

50 GALLON RECTANGULAR
ALUMINUM FUEL TANK - LH
FUEL FILTER/FUEL WATER
SEPARATOR WITH WATER-IN-FUEL
INDICATOR
6 GALLON DIESEL EXHAUST FLUID
TANK

Tires

MICHELIN X LINE ENERGY Z
315/80R22.5 20 PLY RADIAL FRONT
TIRES
MICHELIN X MULTI D 11R22.5 16 PLY
RADIAL REAR TIRES

Hubs

CONMET PRESET PLUS PREMIUM
IRON FRONT HUBS
CONMET PRESET PLUS PREMIUM
IRON REAR HUBS

Wheels

22.5X9.00 10-HUB PILOT POLISHED 10-
HAND ALUMINUM DISC FRONT
WHEELS
22.5X8.25 10-HUB PILOT POLISHED
ALUMINUM DISC REAR OUTER
WHEELS

Cab Exterior

112 INCH BBC FLAT ROOF
ALUMINUM CONVENTIONAL AIR
RIDE CAB
BOLT-ON MOLDED FLEXIBLE
FENDER EXTENSIONS
NFPA COMPLIANT EXTERIOR GRAB
HANDLES
HOOD MOUNTED CHROMED PLASTIC
GRILLES
FIBERGLASS HOOD WITH FIREWALL
INSULATION
DUAL 25 INCH ROUND STUTTER
TONE HOOD MOUNTED AIR HORNS
WITH DUAL LANYARDS

Exeter VFD – Toyne Proposal Specifications

DUAL ELECTRIC HORNS
INTEGRAL HEADLIGHT/MARKER
ASSEMBLY WITH CHROME BEZELS &
DAYTIME RUNNING LIGHTS
LED AERODYNAMIC MARKER
LIGHTS
DUAL 102" WEST COAST BRIGHT
FINISH HEATED MIRRORS WITH LH
AND RH REMOTE
LH AND RH 8 INCH BRIGHT FINISH
CONVEX MIRRORS MOUNTED UNDER
PRIMARY MIRRORS
63X14 INCH TINTED REAR WINDOW
TINTED DOOR GLASS LH AND RH
WITH TINTED NON-OPERATING WING
WINDOWS
RH AND LH ELECTRIC POWERED
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 KICKPLATES
LOWER DOORS
BLACK MATS WITH PREMIUM
INSULATION
WOODGRAIN INSTRUMENT PANELS
FORWARD ROOF MOUNTED
CONSOLE WITH UPPER STORAGE
COMPARTMENTS WITHOUT NETTING
IN DASH STORAGE BIN
AM/FM/WB DASH MTD RADIO WITH
AUXILIARY INPUT
(2) CUP HOLDERS LH AND RH DASH
HEATER, DEFROSTER AND AIR
CONDITIONER
MAIN HVAC CONTROLS W/
RECIRCULATION SWITCH
SOLID-STATE CIRCUIT PROTECTION
AND FUSES

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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) 12V POWER SUPPLY & USB
CHARGER IN DASH
SEATS INC 911 UNIVERSAL SERIES
HIGH BACK AIR SUSPENSION DRIVER
SEAT NFPA COMPLIANT
SEATS INC 911 UNIVERSAL SERIES
HIGH BACK AIR SUSPENSION
PASSENGER SEAT NFPA COMPLIANT
BLACK CORDURA PLUS CLOTH SEAT
COVERS
NFPA 1901-2009 HIGH VISIBILITY
ORANGE SEAT BELTS
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 INDICATOR
LIGHT AND AUDIBLE ALARM
2 INCH PRIMARY AND SECONDARY
AIR PRESSURE GAUGES
ENGINE COMPARTMENT MOUNTED
AIR RESTRICTION INDICATOR WITH
GRADUATIONS
ELECTRONIC CRUISE CONTROL WITH
SWITCHES IN LH SWITCH PANEL
ICU3S, 132X48 DISPLAY WITH
DIAGNOSTICS, 28 LED WARNING
LAMPS AND DATA LINKED
FIRE AND EMERGENCY SERVICE
VEHICLES ENGINE WARNING
2 INCH ELECTRIC FUEL GAUGE
ELECTRICAL ENGINE COOLANT
TEMPERATURE GAUGE

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2 INCH TRANSMISSION OIL
TEMPERATURE GAUGE
ENGINE AND TRIP HOUR METERS
INTEGRAL WITH DRIVER DISPLAY
ELECTRIC ENGINE OIL PRESSURE
GAUGE
ELECTRONIC MPH SPEEDOMETER
WITH SECONDARY KPH SCALE
ELECTRONIC 3000 RPM
TACHOMETER
VT-HU CONNECTIVITY PLATFORM
HARDWARE
IGNITION SWITCH CONTROLLED
ENGINE STOP
DIGITAL VOLTAGE DISPLAY
INTEGRAL WITH DRIVER DISPLAY
SINGLE ELECTRIC WINDSHIELD
WIPER MOTOR WITH DELAY
MARKER LIGHT SWITCH INTEGRAL
WITH HEADLIGHT SWITCH
ONE VALVE PARKING 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

Paint Design

ONE SOLID BASE/CLEAR COAT RED
COLOR
BLACK, HIGH SOLIDS
POLYURETHANE CHASSIS PAINT

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Weight Summary

	Weight Front	Weight Rear	Total Weight
Factory Weight ⁺	9616 lbs	8276 lbs	17892 lbs

(+) Weights shown are estimates only.

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DEALER SUPPLIED AND INSTALLED ITEMS

QTY	DESCRIPTION
3	6" x 12' PVC Suctions LHFNH Swivel x RLM NH - Kocek brand
3	2.5" x 12' PVC Suctions LHFNH Swivel x RLMNH - Kocek brand
	Aluminum Framed 3000 Gallon dump tank 22oz vinyl yellow - Husky
1	brand or equal
1	HANSCOMK GPS HC-082533 with Backup camera (includes antenna)
50	Black Plastic Floor tiles – installed
25	Yellow Plastic tile edges – installed
2	Folding NFPA Large Aluminum wheel chocks
1	Kocek LL60 Low level strainer 6"
1	Kocek FBS60 6" floating strainer
2	FD Final Inspection at Factory
1	Install up to three (3) FD supplied handlights - FD specify location
1	Install up to one (1) FD supplied pike pole bracket set - FD specify location
1	Install up to two (2) FD supplied axe bracket sets - FD specify location