



Velocity Fire Equipment Sales

One (1) == Bid Prep Forms - 4212.023 04/21/23 ==

One (1) Fire Department Name
00-00-1300

BID SPECIFICATIONS

FOR

ROSENBAUER CUSTOM PUMPER

One (1) Overall Height Restriction, NONE
00-00-1499

OVERALL HEIGHT



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One (1)
00-00-1509 An overall height restriction has not been specified for this apparatus.
Overall Length Restriction, NONE

OVERALL LENGTH

One (1)
00-00-1519 An overall length restriction has not been specified for this apparatus.
Overall Width Restriction, NONE

OVERALL WIDTH

One (1)
00-00-1529 An overall width restriction has not been specified for this apparatus.
Wheelbase Restriction, NONE

WHEELBASE

One (1)
00-00-1539 A wheelbase restriction has not been specified for this apparatus.
Angle of Approach, NFPA Minimum, 8 Degrees

ANGLE OF APPROACH

One (1)
00-00-1549 The angle of approach for the apparatus shall not be less than eight (8) degrees as specified by the current edition of the NFPA 1901 Guideline.
Angle of Departure, NFPA Minimum, 8 Degrees

ANGLE OF DEPARTURE

One (1)
00-00-3220 The angle of departure for the apparatus shall not be less than eight (8) degrees as specified by the current edition of the NFPA 1901 Guideline.
Contract Change Notice

CONTRACT CHANGE NOTICE



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The quoted delivery time is based upon our receipt of the specified materials required to produce the apparatus in a timely manner. "Delivery" means the date company is prepared to make physical possession of vehicle available to the customer.

The Company shall not be responsible nor deemed to be in default on account of delays in performance due to causes which are beyond the Company's control which make the Company's performance impracticable, including but not limited to civil wars, insurrections, strikes, riots, fires, storms, floods, other acts of nature, explosions, earthquakes, accidents, any act of government, delays in transportation, inability to obtain necessary labor supplies or manufacturing facilities, allocation regulations or orders affecting materials, equipment, facilities or completed products, failure to obtain any required license or certificates, acts of God or the public enemy or terrorism, failure of transportation, pandemics, epidemics, quarantine restrictions, failure of vendors (due to causes similar to those within the scope of this clause) to perform their contracts or labor troubles causing cessation, slowdown, or interruption of work.

After execution and acceptance of this Purchase Process, the Buyer may request that the Company incorporate a change to the Products or the Specifications for the Products by delivering a Change Order to the Company; provided, however, that any such Change Order must be in writing and include a description of the proposed change sufficient to permit the Company to evaluate the feasibility of such Change Order. Within seven (7) working days of receipt of a Change Order, the Company will inform the Buyer in writing of the feasibility of the Change Order, the earliest possible implementation date for the Change Order, of any increase or decrease in the Purchase Price resulting from such Change Order, and of any effect on production scheduling or delivery resulting from such Change Order. The Company shall not be liable to the Buyer for any delay in performance or delivery arising from any such Change Order.

Purchase Price may be modified only by mutual written agreement of the Parties because of changes to the Apparatus required or requested by the Buyer during the construction process pursuant to Appendix C, Change Order Policy. Any changes in the Purchase Price resulting from changes to the Apparatus required or requested by the Buyer during the construction process shall be stated in the Change Order signed by both parties. Additional Changes: If various state or federal regulatory agencies (e.g., NFPA, DOT, EPA) require changes to the specification and/or the product that result in a cost increase to comply therewith this cost will be added to the Purchase Price to be paid by the customer.

Financial Stability Response

One (1)
00-12-1100

FINANCIAL STABILITY SPECIFICATIONS



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With high-profile instances of fire apparatus manufacturers encountering financial difficulties, it is imperative that fire departments be diligent in evaluating the financial position of the companies they solicit to build on their emergency response vehicles. A contract entered into with a company on shaky ground is a dangerous prospect, since conducting business with a manufacturer in such condition could open the department to monumental problems.

Take, for instance, the growing theme of manufacturers *requiring* as opposed to *offering* pre-payment and progressive payment options with a corresponding discount off the price of a vehicle. Such offers are made with an ulterior motive in mind, as it can be generally inferred that manufacturers requiring pre-payments and progressive payments do so because they need your cash *today* to fund production of other vehicles already in the backlog.

Should problems arise, as has been the case in situations too numerous to mention, your department risks losing any down payments already made or even the entire cost of a piece of equipment should certain pre-pay discount situations go awry.

While pre-payment discounts may be enticing, it is important to know just how stable the manufacturer seeking your funds is before you make that commitment. If you enter into one of these agreements and the manufacturer hits a rough patch, it is you that will be hurting, because your funds may not be recoverable. However, if you enter into a contract with a financially sound manufacturer, you will reap all of the benefits of a well-built truck at a lower cost. You may equally, by taking advantage of the time-value of money, be able to afford more truck than initially thought, because funds saved by leveraging pre-payment options could allow you get some added features that you might not necessarily have been able to afford.

With this in mind, it must be noted that Rosenbauer is a company with rock-solid financial stability. This is a statement not made lightly, as we can prove it to you. We can provide language that you can insert into your bid specifications that stipulates that in order for bids to be accepted by a fire department, the company bidding must meet several fiscal criteria.

The first criteria call for the successful bidder to meet a debt-to-equity ratio not exceeding a 2.0 rating. Rosenbauer presently stands at a 1.51 rating, which is well-below the accepted rating. This low number results from Rosenbauer owning more assets with a marginal debt service. This means we are not using lenders to fund our operations, nor our growth.



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The second requirement is that the debt coverage ratio of the successful body builder exceeds a 100 rating. The higher the number, the better able a company is to meet its payment obligations with banks and creditors. Rosenbauer's number is at 279.6, which is nearly three times the required amount. The higher the debt coverage ratio, the easily and more fluidly a company is positioned to pay its monthly obligations and operating costs.

The third criteria require that the equity ratio of the successful bidder must exceed .30 rating. A higher equity ratio indicates that the body builder has increased flexibility to meet its financial obligations which translates into greater financial stability. Rosenbauer currently has an equity ratio of .387 which is well above the accepted rating and an excellent indicator of financial strength.

When exploring and evaluating various manufacturers to consider for building your apparatus, there is little doubt you will find one that stands on as firmly a financial ground as Rosenbauer. While others are experiencing stressful issues that raise doubts as to the company's long-term viability, Rosenbauer continues to demonstrate a strengthening of its financial position in the apparatus manufacturing industry. Because Rosenbauer meets and exceeds all the above-stated financial bid requirements, we are best positioned to ensure customers of a strong relationship with the company, which cannot be claimed by most of our competitors in this volatile market.

The Rosenbauer America Dun and Bradstreet number is 02-447-3584. To acquire a Dun and Bradstreet report, telephone them at 1-800-234-3867 (in Canada 800-463-6362) or visit their web site address at www.dnb.com. Dun and Bradstreet is nationally recognized, independent financial analysis company.

Calculated Center of Gravity

One (1)
01-06-0500

CENTER OF GRAVITY

The apparatus, prior to acceptance, will be required to meet the vehicle stability of the applicable NFPA Automotive Fire Apparatus Standard.

A calculated center of gravity shall be provided. The calculated or measured center of gravity (CG) shall be no higher than 80-percent of the rear axle track width. If so, a tilt table test at the apparatus body builder's facility or Electronic Stability Control (ESC) must be provided on the chassis meeting the requirement of the NFPA 1901 Guideline.

Technical Drawings, Representative Drawings (3-View) (Left/Right/Rear)

One (1)
01-07-0060

10017-0006



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ENGINEERING BLUEPRINTS

ROSENBAUER has submitted "proposal" blueprints which are “representative” of the vehicle being proposed and these have been generated on computer-aided-design (CAD) equipment.

The blueprints are provided as follows:

Sheet No. 1:

- Left side exterior view
- Right side exterior view
- Rear exterior view

ROSENBAUER shall provide construction drawings for approval prior to actual construction of the vehicle.

The design of the equipment is in accordance with the best engineering practices. The equipment design and accessory installation shall permit accessibility for use, maintenance and service. All components and assemblies shall be free of hazardous protrusions, sharp edges, cracks or other elements, which might cause injury to personnel or equipment.

All oil, hydraulic, and air tubing lines and electrical wiring shall be located in protective positions properly attached to the frame or body structure and shall have protective loom or grommets at each point where they pass through structural members, except where a through-frame connector is necessary.

Parts and components will be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure. Whenever functional layout of operating components determines that physical or visual interference between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility.

Change Orders

One (1)
01-07-1100

CHANGE ORDERS

To ensure the proper engineering and construction of the purchaser's custom fire apparatus in a timely manner, the contractor shall consider the order final and complete after any changes made



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during the pre-construction conference are mutually approved. Change orders requested after the pre-construction conference are discouraged. It shall be understood and agreed that any changes, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

One (1)
01-33-3409

Manuals, Body Complete, Electronic Internet Service

"ON-LINE" SERVICE MANUAL SUPPORT

As part of the standard delivery manual, **ROSENBAUER** shall give a password-protected link to the end user, allowing access to the manufacturers' database on service parts. The internet-based system shall allow the end user to access the major component supplier's service parts listing such as Hale, Waterous, Akron, etc. This shall be accomplished with simplistic point and click features on the manufacturer line item within the "stripper" or "line item sheet". This will include, automatic updates, printable schematics and manufacturer's web links and is available in the commercially available format of Adobe Acrobat Reader to access these documents.

Rosenbauer America, LLC shall submit with the bid proposal, a sample set of on line Adobe formatted material that has been printed from the manufacturer's website.

Parts Listings within Manuals

The manuals will include cross-reference part numbers from the **ROSENBAUER** part number to the vendor parts. Example: **ROSENBAUER Hydraulic Ladder Rack, Part #LR-MN-0002** cross-referenced to Ziamatic Corporation Part 098-MN2345. This will allow for reference between individual parts and complete installation assemblies as completed by the body builder. The manuals will list all components of the vehicle that includes a vendor part utilized in a complete installation via the manufacturer's "line item sheet" or "stripper" utilized to manufacture the completed vehicle. These are "As Built" and proposals with "typical" or "generic" manuals will be rejected.

Illustrative Schematics within Manuals

ROSENBAUER shall include installation diagrams and drawings of all major sub assemblies. This will include components such as hydraulic ladder rack assemblies, pump panels, tanks, fire pumps, etc. The drawings shall be linked via an Internet based service program, in an electronic format from the manufacturers "stripper" (line item listing) of the manufacturing document. **ROSENBAUER** shall submit, upon request, a sample schematic.



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Digital Images within Manuals

In addition to two and three-dimensional installation drawings, **ROSENBAUER** shall make accessible, via an internet based link, the actual photos of the installed components listed within the "stripper" or line sheet. This will include, but not limited to wiring terminals, main body distribution strips, fire pump shifting, auxiliary components, etc. **ROSENBAUER** shall submit a sample of these upon request.

Installation Instructions within Manuals

ROSENBAUER "work instructions" or "installation instructions" shall be included with the service manuals. These documents shall be accessible via a web-based link to the individual vehicle manufactured. The work instructions shall give systematic instructions of the component installation process. **ROSENBAUER** shall submit, upon request, a sample set of instructions.

Automatic Updates of Manuals and Parts Listings

The online manuals will include automatic updates that are accessible via the web link. When clicking on the part within the manufacturer's stripper or line sheet, it will allow the end user to access the component manufacturer website for updated information. This will allow for latest parts and service components from the individual part manufacturer or vendor.

Electrical Schematics

To maintain the vehicles electrical systems, the manufacturer shall provide to the purchaser the instructional manuals, complete electrical information and schematics on the vehicle. The electrical information shall be provided as follows:

Wiring Systems 12 and 120 Volt:

- Graphic symbols for electrical diagrams.
- Wire labeling, imprinting codes and index.
- Computer generated electrical schematics indicating the circuit number, wire size, switches, circuit breaker and terminals on the vehicle.

ROSENBAUER shall submit, upon request, a sample set of diagrams.



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One (1) == Warranties - Single Axle Tanker - 4212.023 04/21/23 ==

One (1) Warranty, Apparatus, Body Warranty, 1 Year
01-16-0150

BODY WARRANTY

We warrant each new motorized fire apparatus manufactured by ROSENBAUER AMERICA, LLC for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein.

Under this warranty we agree to furnish any parts to replace those that have failed due to defective material or workmanship where there is no indication of abuse, neglect, unusual or other than normal service providing that such parts are, at the option of ROSENBAUER AMERICA, LLC, made available for our inspection at our request, returned to our factory or other location designated by us with transportation prepaid within thirty days after the date of failure or within one year from the date of delivery of the apparatus to the original purchaser, whichever occurs first, and inspection indicates the failure was attributed to defective material or workmanship.

The warranty on the chassis and chassis supplied components, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

This warranty will not apply to any fire apparatus that has been repaired or altered outside our factory in any way, which in our opinion might affect its stability or reliability.

This warranty shall not apply to those items that are usually considered normal maintenance and upkeep services: including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or reels.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on our part. We neither assume nor authorize any person to assume for us any liability in connection with the sales of our apparatus unless made in writing by ROSENBAUER AMERICA, LLC.

One (1) Warranty, Body, Aluminum, 5 Years



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01-19-0250

ALUMINUM BODY WARRANTY - FIVE YEAR

Rosenbauer America, LLC warrants to the original purchaser only, that the all-aluminum body, fabricated by Rosenbauer America, LLC, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for a period of FIVE (5) years.

This warranty does not apply to the following items that are covered by a separate warranty: paint finish, hardware, moldings, and other accessories attached to this body. In addition, this warranty does not apply to any part or accessory manufactured by others and attached to this body.

ROSENBAUER AMERICA, LLC MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE ALUMINUM BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND HEREBY DISCLAIMED.

Rosenbauer America, LLC will replace without charge, repair or make a fair allowance for any defect in material or workmanship demonstrated to its satisfaction to have existed at the time of delivery or not due to misuse, negligence, or accident. If Rosenbauer America, LLC elects to repair this body, the extent of such repair shall be determined solely by Rosenbauer America, LLC, and shall be performed solely at the Rosenbauer America, LLC factory, or at an approved facility. The expense of any transportation to or from such repair facility shall be borne by the purchaser and is not an item covered under this warranty.

Rosenbauer America, LLC will not be liable for damages and under no circumstances will its liability exceed the price for a defective body. The remedies set forth herein are exclusive and in substitution for all other remedies to which the purchaser would otherwise be entitled.

Rosenbauer America, LLC will be given a reasonable opportunity to investigate all claims. The purchaser must commence any action arising out of, based upon or relating to agreement or the breach hereof, within twelve months from the date the cause of the action occurred.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.
Warranty, Subframe, Lifetime Galvanized

One (1)
01-19-2700



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GALVANIZED STEEL SUBFRAME WARRANTY

The manufacturer shall provide a lifetime warranty for the galvanized steel subframe of the apparatus body. The manufacturer shall supply details of their warranty information with their bid submission.

One (1)
01-20-1005

Warranty, Paint, AkzoNobel, 5 Years

PAINT WARRANTY - FIVE YEAR

The AkzoNobel paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of FIVE (5) year beginning the day the vehicle is delivered to the purchaser.

The full apparatus body, manufactured and painted by Rosenbauer America, LLC, shall be covered for the following paint failures as outlined on the guarantee certificate:

- Peeling or delaminating of the topcoat and/or other layers of paint.
- Cracking or checking.
- Loss of gloss caused by cracking, checking, or hazing.
- Any paint failure caused by defective AkzoNobel finishes, which are covered by this guarantee.

All guarantee exclusions, limitations, and methods of claims are covered in the full certificate provided to the original purchaser.

Note: *Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.*

One (1)
01-17-0160

Pump Warranty, Darley, 10 Years

FIRE PUMP WARRANTY

A ten (10) year warranty for the Darley fire pump shall be provided.

One (1)
01-17-1050

Plmbg Warranty, Stainless Steel, 10 Years

STAINLESS STEEL PLUMBING WARRANTY

10017-0006



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The manufacturer shall provide a ten (10) year warranty on the stainless steel plumbing components and installation. The manufacturer shall supply details of their warranty information with their bid submission.

One (1) Freightliner M2 2-door W/300 HP Engine 4000GVW 14/26 Axles
09-01-0290

FREIGHTLINER M2 CONVENTIONAL CHASSIS



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One (1) Hrzntrl Chassis Exhaust (Front of Rr wheel)
09-01-6100

HORIZONTAL CHASSIS EXHAUST

One (1) The chassis exhaust system shall be extended to the front of the right rear wheel.
== Pumper/Tanker-DC Electrical System - 4212.023 04/21/23 ==

One (1) Electrical, Base, Standard, W/O Load Management
50-03-1000

LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the using device shall not exceed 10 percent. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. All exposed wiring shall be protected in a loom with a minimum 289 degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

The wiring between the cab and body shall be joined using Deutsche type connectors or an enclosed in a terminal junction panel area. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system.



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Any electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified every three-inches (3") by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA #1901 standards.

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

The electrical system shall include the following:

- Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- The electrical wiring shall be harnessed or be placed in a protective loom.
- Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.
- A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.
- All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights provided over the



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minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. The warning light switches shall be of the rocker type. For easy nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized. All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall automatically activate per requirements of the applicable NFPA standards. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

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

1. Reserve capacity test:

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

2. Alternator performance test at idle:

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

3. Alternator performance test at full load:



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The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system is permitted during this test. However, if an alarm sounds due to excessive battery discharge, as detected by the system requirements in the NFPA standards, or a system voltage of less than 11.7 volts dc for more than 120 seconds is present, the test has failed.

4. Low voltage alarm test:

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

NFPA REQUIRED DOCUMENTATION

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

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

One (1)
50-05-1510

Electrical Junction Box, Weather Resistant

WEATHER RESISTANT ELECTRICAL JUNCTION BOX



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The electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required. The main body junction panel shall be located in the pump compartment.

One (1)
50-12-5200 Electrical Dash Console, In Cab

ROCKER SWITCH CONSOLE

A switch console with individual rocker switches to control electrical equipment and emergency lighting shall be installed in the chassis cab dash area.

One (1)
50-15-1100 Batteries, With Supl'd Chs

BATTERY SYSTEM

The battery system shall be supplied with the chassis.

One (1)
50-15-3100 Battery Switch, Master Disconnect , Chassis Sppld

MASTER ELECTRIC SWITCH

A battery disconnect switch shall be located conveniently to the driver of the apparatus. The switch shall disconnect the 12 volt power supply from the battery system.

One (1)
50-15-5600 Battery Charger, KUSS, Autocharge 1000 091-215-12

BATTERY CHARGER

A Kussmaul Autocharge 1000 model #091-215-12, 18 amp fully automatic high output battery charger shall be wired to the 12 volt battery system. The charger unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

One (1)
50-16-1200 Display, Digital, Single Battery Bank, Standard Housing 091-194B-IND

BATTERY CHARGER DISPLAY

A Kussmaul model 091-194B-IND digital single battery bank voltage display shall be supplied with the charger. The display provides digital voltage and amperes readout, a 5-segment bar graph indicating output current and four (4) LED's showing battery condition.



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One (1)
50-26-1010 Shore Power Inlet, Kussmaul Super Auto-Eject

SHORE POWER RECEPTACLE

A Kussmaul "Auto-Eject" automatic disconnect device shall be provided and installed on the 110-volt shoreline connection complete with weatherproof cover and matching plug. The Auto-Eject shall be activated by the chassis starter switch to disconnect the plug.

One (1)
50-42-2002 Air Horns, Two (2) Hood Mounted, 24.5" Chrome

AIR HORNS

Two (2) chrome plated air horns shall be mounted on the side of the hood of the commercial chassis. An air protection valve shall be provided in the air horn piping that will not allow the chassis air brake system to drop below 90 PSI.

One (1)
50-43-2100 Air Horn Control, Driver, Single Foot Switch

AIR HORN FOOT SWITCH

A foot switch shall be installed to activate the air horn system on the driver's side of the floor.

One (1)
50-43-2200 Air Horn Control, Officer, Single Foot Switch

AIR HORN FOOT SWITCH

A foot switch shall be installed to activate the air horn system on the officer's side of the floor.

One (1)
51-05-6200 Light, Engine Compt, 12 Volt LED, w/Switch

ENGINE COMPARTMENT LIGHT

One (1) 12 volt LED light with switch shall be mounted in the engine enclosure.

One (1)
51-05-9000 Switch on Light Head

The control switch shall be mounted on the light head.

One (1)
51-05-6400 Light, Pump Compt, 12 Volt LED With Switch

PUMP ENCLOSURE LIGHTS

10017-0006



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One (1)
51-05-9000 One (1) LED work light shall be provided in the pump enclosure.
Switch on Light Head

One (1)
52-01-1200 The control switch shall be mounted on the light head.
Back Up Alarm

BACK-UP ALARM

One (1)
53-01-1200 An automatic electric back-up alarm shall be wired to the back-up light circuit, and mounted under the rear of the apparatus body.
Marker Lts, LED, DOT Requirements

MARKER LIGHTS

One (1)
53-02-1200 LED marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements.
License Plate Bracket, SST w/ LED Light, Rear

LICENSE PLATE BRACKET

One (1)
53-03-2600 A stainless steel license plate bracket shall be provided at the rear of the apparatus. The bracket shall have a LED light.
Tail/Brake Lights, Whelen, 600's 4"x6" (Pair) 604BTT

TAIL LIGHTS

One (1)
53-04-2600 One (1) pair of Whelen 604BTT LED tail/brake lights shall be provided on the rear of the apparatus. The rectangular lights shall be 4" x 6" LED with a red lens.
Turn Signals, Whelen, 600's LED w/ Arrow, 4"x6" (Pair) 604T

TURN SIGNALS

One (1) pair of Whelen, 604T turn signals with populated arrow shape shall be provided. The rectangular LED lights shall be 4" x 6" in dimension and shall have an amber lens.



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One (1) Backup Lights, Whelen, 600's LED, 4"x6" (Pair) 604BU
53-06-3500

BACKUP LIGHTS

One (1) pair of Whelen 604BU LED backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 4" x 6" and the lens color shall be clear.

One (1) (3) Light Bezel, Tail Lights, Whelen 600 ABS Chrome, All Lights, (Pair)
53-07-1113

THREE LIGHT HOUSING

One (1) pair of chrome plated tail light housings shall be supplied. Each housing shall be designed to hold three (3) Whelen 600 Series rear lights located at the lower rear corners of the body.

One (1) Ground Lights, Cab, 2 Door, LED Pair
54-02-1400

CAB GROUND LIGHTS

Two (2) LED ground lights shall be installed on the chassis cab, one under each cab door.

One (1) Ground Lights, Pump Panel, LED, Pair
54-03-1200

PUMP PANEL GROUND LIGHTS

Two (2) LED ground lights shall be installed under the pump panel running boards. One (1) light shall be located on the driver's side and one (1) light located on the officer's side of the apparatus.

One (1) Ground Lights, Rear Step, LED, Pair
54-03-1600

REAR STEP GROUND LIGHTS

Two (2) LED ground lights shall be installed under rear step of the apparatus.

One (1) Light Switch , Ground Lights w/ Park Brake
54-04-1999

The ground lights shall automatically activate when the parking brake is applied.
One (1) Step Light, Fixed /Folding Step, LED, Ea



Velocity Fire Equipment Sales

54-10-1300

STEP LIGHT

One (1) LED step light(s) with clear lens shall be installed.

Two (2)
54-10-1450 Step Light, Rear Tailboard, LED, Ea

REAR TAILBOARD LIGHTS

Two (2) LED step lights with clear lens shall be installed to illuminate the step surfaces at the rear of the apparatus body.

One (1)
54-11-2100 Light Switch , Step/Walkway Lights Wired Park Brake Switch

The step/walkway light switch shall be installed and wired to the parking brake.

One (1)
54-12-1520 Deck Lights, Code 3, LED, 2-Spotlights #CW2450, Black

Two (2) 12 volt Code 3 Model CW2450 spotlights each with nine (9) LED's, shall be installed. The lights shall have an "on-off" switch, handle and swivel base.

Mount per drawing

One (1)
54-12-3010 Deck Light Switch , Wired Park Brake Switch

A deck light switch shall be installed and wired to the parking brake.

One (1)
55-11-1300 Door Open/Hazard Warning Light, Flashing LED Red Lens

DOOR OPEN LIGHT

A red flashing, warning light shall be provided and installed in the driver's compartment to indicate an open passenger or apparatus compartment door. The warning light shall also be attached to folding equipment racks and light towers as specified. The light shall be a flashing LED marker light with a red lens and shall be properly marked and identified.

One (1)
56-01-1602 Siren, Electronic, Whelen 295SLSA1

ELECTRIC SIREN AND CONTROL

10017-0006



Velocity Fire Equipment Sales

One (1)
56-02-1750

A Whelen model #295SLSA1 electronic siren shall be mounted in the cab. This unit shall feature an electronic air horn, wail, yelp, hi-lo and shall have a hard wired PA microphone. Speaker, Whelen SA315P, 100 Watt

SPEAKER

One (1)
56-03-1800

One (1) Whelen Model #SA315P, nylon composite speaker shall be installed. The speaker shall be wired to the electric siren located in the cab. Speaker Location, To Be Determined by Body Mfg

SPEAKER LOCATION

One (1)
57-02-3050

The siren speaker shall be installed on the apparatus bumper extension, as determined by the body manufacturer.

Light Bar, Whelen, Justice, LED, 56" JE2NFPA

LIGHTBAR

One (1) Whelen Justice series light bar shall be included with the apparatus cab. The light bar shall be a model JE2NFPA and shall be mounted on the roof of the cab, towards the front, above the windshield.

The light bar shall feature:

- A 56" light bar designed for high performance
 - Four (4) red Linear Super LED corner modules
 - Four (4) red CON3 LED hinged modules
 - Two (2) white CON3 LED hinged modules with exterior clear optic lenses
 - Clear hard coated lenses to provide extended life/luster protection against UV & chemical stresses
 - Designed in accordance with NFPA Zone A requirements
- Light Bar Control, with Master Warning Switch

One (1)
57-10-0609

LIGHTBAR ACTIVATION

One (1)

The front upper light bar activation shall be wired into the master warning switch. Warning Lights, Whelen, Upper Rear Body (2) S-LED Rotary L31 P/N L31*F



Velocity Fire Equipment Sales

58-71-3200

UPPER REAR WARNING LIGHTS

One (1) pair of Whelen Super LED, rotating beacons, P/N L31H*F, shall be installed, one each side on the upper rear of the apparatus body. The unit shall have dimensions of 4" high x 7-9/16" deep.

One (1)
57-20-8119 Warn Light, Driver, Whelen, L31 LED Rotator Red Color Lens, Ea

The driver side warning light shall be a Whelen LED rotator, model L31HRF with a red lens.

One (1)
57-20-8120 Warn Light, Officer, Whelen, L31 LED Rotator Red Color Lens, Ea

The officer side warning light shall be a Whelen LED rotator, model L31HRF with a red lens.

One (1)
58-74-5300 Stanchions, Rear Warning Light, Cast Alum

REAR WARNING LIGHT MOUNTING

The upper rear lights shall be mounted on cast aluminum stanchions attached to the apparatus body, one on each side.

One (1)
58-03-2102 Warning Lights, Whelen, Low Front, (2) LINZ6 LED

LOWER FRONT WARNING LIGHTS

One (1) pair of Whelen model LINZ6 LED warning lights shall be installed, one each side one the front of the chassis cab. The warning light shall incorporate six red Super-LEDs, a clear non-optic hard coated polycarbonate lens, clear optic collimator and utilize a metalized reflector for maximum output. The dimensions of the lights shall be 2" x 4".

One (1)
57-20-2000 Warn Light, Driver, Whelen, LINZ6, Red LED, Clear Lens, Ea

The driver side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
57-20-2001 Warn Light, Officer, Whelen, LINZ6, Red LED, Clear Lens, Ea

The officer side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
58-09-2100 Warning Lights, Whelen, Intersection, (2) LINZ6 LED

10017-0006



Velocity Fire Equipment Sales

INTERSECTION WARNING LIGHTS

One (1) pair of Whelen model LINZ6 LED warning lights shall be installed, one each side of the chassis cab. The warning light shall incorporate six red Super-LEDs, a clear non-optic hard coated polycarbonate lens, clear optic collimator and utilize a metalized reflector for maximum output. The dimensions of the lights shall be 2" x 4".

One (1)
57-20-2000 Warn Light, Driver, Whelen, LINZ6, Red LED, Clear Lens, Ea

The driver side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
57-20-2001 Warn Light, Officer, Whelen, LINZ6, Red LED, Clear Lens, Ea

The officer side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
58-26-2100 Warning Lights, Whelen, Lower Mid Body (2) LINZ6 LED

LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model LINZ6 LED warning lights shall be installed, one each side one of the apparatus, mid body. The warning light shall incorporate six red Super-LEDs, a clear non-optic hard coated polycarbonate lens, clear optic collimator and utilize a metalized reflector for maximum output. The dimensions of the lights shall be 2" x 4".

One (1)
57-20-2000 Warn Light, Driver, Whelen, LINZ6, Red LED, Clear Lens, Ea

The driver side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
57-20-2001 Warn Light, Officer, Whelen, LINZ6, Red LED, Clear Lens, Ea

The officer side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
58-36-2100 Warning Lights, Whelen, Lower Rear Side (2) LINZ6 LED

LOWER REAR SIDE WARNING LIGHTS

One (1) pair of Whelen model LINZ6 LED warning lights shall be installed, one each side of the apparatus body, towards the rear of the body. The warning light shall incorporate six red Super-LEDs, a clear non-optic hard coated polycarbonate lens, clear optic collimator and utilize a metalized reflector for maximum output. The dimensions of the lights shall be 2" x 4".



Velocity Fire Equipment Sales

One (1)
57-20-2000 Warn Light, Driver, Whelen, LINZ6, Red LED, Clear Lens, Ea

The driver side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
57-20-2001 Warn Light, Officer, Whelen, LINZ6, Red LED, Clear Lens, Ea

The officer side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

Two (2)
58-01-2200 Flange, Chrome, Warning Light, Whelen, LINZ6FC, Ea

Each light shall be surface mounted with a Whelen Model LIN6FC chrome flange.

One (1)
58-81-2200 Warning Lights, Whelen, Lower Rear Body (2) LINZ6 LED

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model LINZ6 LED warning lights shall be installed, one each side on the lower rear portion of the apparatus body. The warning light shall incorporate six red Super-LEDs, a clear non-optic hard coated polycarbonate lens, clear optic collimator and utilize a metalized reflector for maximum output. The dimensions of the lights shall be 2" x 4".

One (1)
57-20-2000 Warn Light, Driver, Whelen, LINZ6, Red LED, Clear Lens, Ea

The driver side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

One (1)
57-20-2001 Warn Light, Officer, Whelen, LINZ6, Red LED, Clear Lens, Ea

The officer side warning light shall be a Whelen Model LINZ6R red LED with clear lens.

Two (2)
58-01-2200 Flange, Chrome, Warning Light, Whelen, LINZ6FC, Ea

Each light shall be surface mounted with a Whelen Model LIN6FC chrome flange.

One (1) == Pumper/Tanker-Chassis Modifications - 4212.023 04/21/23 ==

One (1)
10-02-1100 Label, Data, Fluid Levels

FLUID DATA PLAQUE



Velocity Fire Equipment Sales

A fluid data plaque containing required information shall be provided based on the applicable components for this apparatus, compliant with NFPA Standards:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Drive axle lubricant
- Power steering fluid
- Pump transmission lubrication fluid
- Other NFPA applicable fluid levels or data as required

Location shall be in the driver's compartment or on driver's door.
Label, Data, Height x Length, Weight

One (1)
10-02-1200

HEIGHT LENGTH & WEIGHT WARNING LABEL

A highly visible label indicating the overall height, length, and weight of the vehicle shall be installed in the cab dash area.

One (1)
10-02-1300

Label, Data, "No Ride" Rr Step

NO RIDE LABEL

A "NO RIDERS" label shall be applied on the vehicle at the rear step area or other applicable areas. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion is prohibited.

One (1)
10-02-2100

Label, Indicating Number of Seats

CAB SEATING POSITION LIMITS

A label shall be installed in the cab to indicate seating positions for firefighters. A weight allowance of 250 pounds for each shall be factored into the gross vehicle weight rating of the chassis.

One (1)
10-02-2500

Label, "Caution: Do Not Wear Helmet While Seated"

HELMET WARNING TAG



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A label shall be installed in the cab, visible from each seating position. The label shall read "CAUTION: DO NOT WEAR HELMET WHILE SEATED." Helmets must be properly stowed while the vehicle is in motion according to the current edition of NFPA 1901.

One (1)
10-03-6010 Tow Plates (2), Rear Frame Rail, Under Step

REAR TOWING PROVISIONS

There shall be two tow eyes furnished under the rear of the body and attached. There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

One (1)
80-43-2400 Painting, Tow Plates, Black

The tow plates shall be painted black.

One (1)
10-06-1110 Wheel Trim, SST Hub/Lug Covers, Front/Rear, Single Axle

HUB AND LUG NUT COVERS

The apparatus shall have chrome or stainless steel hub and lug nut covers on the front and single rear axles.

One (1)
10-06-1601 Tire Pressure Indicator, Single Axle, RWTG1235

TIRE PRESSURE INDICATOR

There shall be a tire pressure indicator, p/n RWTG1235, at each tire's valve stem on the vehicle that shall indicate if there is insufficient pressure in the specific tire.

One (1)
10-10-1440 Cab Step Enclosure, Freightliner, 2 Door Driver Side

CAB STEP ENCLOSURE

The driver side of the Freightliner chassis shall be equipped with a modular step/fuel tank enclosure constructed from slip resistant aluminum tread plate to conform with applicable NFPA standards. The entire step/enclosure is to be of a one piece design, bolted in place for ease of removal.



Velocity Fire Equipment Sales

Heavy steel supports shall be provided to support the driver and passenger side cab entrance steps. Supports shall be attached directly to the chassis frame rails, and shall provide adequate support to the steps to minimize flex and distortion.

One (1)
10-10-1460

Cab Step Enclosure, Freightliner, 2 Door Passenger Side

CAB STEP ENCLOSURE

The passenger side of the Freightliner chassis shall be equipped with a modular step enclosure constructed from slip resistant aluminum tread plate to conform with applicable NFPA standards. The entire step/enclosure is to be of a one piece design, bolted in place for ease of removal.

Heavy steel supports shall be provided to support the driver and passenger side cab entrance steps. Supports shall be attached directly to the chassis frame rails, and shall provide adequate support to the steps to minimize flex and distortion.

One (1)

== Midship Pumper/Tanker Pump & Plumbing - 4212.023 04/21/23 ==

One (1)
20-04-2900

Pump, Darley, HM, 1 Stage, PTO

DARLEY HM SINGLE STAGE PUMP

A Darley model HM single stage fire pump shall be provided and installed.

Power to drive the pump shall be provided by the same engine used to propel the apparatus. The pump shall be midship mounted and designed to operate through a hot-shift transmission PTO. The pump is to be placed in gear from the chassis cab with a pump shift mechanism that is clearly labeled.

Pump casing shall be a fine grain cast iron, with a minimum tensile strength of 30,000 PSI. Pump shall contain a cored heating jacket feature that, if selected, can be connected into the vehicle coolant system to protect the pump from freezing in cold climates, and to help reject engine heat from engine coolant, providing longer life for the engine.

Seal rings shall be renewable, double labyrinth, wrap around bronze type.

PUMP SHAFT



Velocity Fire Equipment Sales

The pump shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine, as well as ease of maintenance and repair.

Bearings provided shall be heavy duty, deep groove, radial-type ball bearings. Sleeve bearings on any portion of the pump or transmission shall be prohibited due to wear, deflection, and alignment concerns. The bearings shall be protected at all openings from road dirt and water splash with oil seals and water slingers.

IMPELLER

The impeller shall be a high strength bronze alloy, splined to the pump shaft for precision fit, durability, and ease of maintenance.

Impeller shaft oil seals shall be constructed to be free from steel components except for the internal lip spring. The impeller shaft oil seals shall carry a lifetime warranty against damage from corrosion from water and other fire-fighting fluids.

PUMP TRANSMISSION

The pump transmission case shall be heavy-duty cast iron with adequate oil reserve capacity to maintain low operating temperature. Pump ratio to be selected by the manufacturers engineering department. Gears shall be helical in design and precision ground for quiet operation and extended life. Gears to be cut from high strength alloy steel, ground, and carburized. Chain drive and/or design requiring extra lubricating pump is not acceptable.

Pump drive shaft shall be precision ground, heat-treated alloy steel, with a 1-3/8 spline. Gears shall be helical design, and shall be precision ground for quiet operation and extended life.

The pump transmission shall require no further lubrication beyond that provided by the intrinsic action of the gears, to reduce the likelihood of failure due to loss of auxiliary lubrication.

DRIVELINE INSTALLATION

The pump drivelines shall be sized for intended application and torque requirements. The installation shall comply with driveline manufacturer's guidelines.

MANUALS



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Two (2) manuals covering the fire pump transmission and fire pump shall be provided with the apparatus.

All Pump Manufactures recommend that their Pumps are drained after every use and be stored dry. End user is responsible to follow this recommendation.

One (1)
20-04-2910 Pump Flow Rtnng, Darley, HM, 500 GPM

500 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Darley model HM with a rated capacity of 500 GPM. The pump shall meet NFPA 1901 requirements.

The pump shall be certified to meet the following deliveries:

500 GPM @ 150 PSI
500 GPM @ 165 PSI
350 GPM @ 200 PSI
250 GPM @ 250 PSI

All Pump Manufactures recommend that their Pumps are drained after every use and be stored dry. End user is responsible to follow this recommendation.

One (1)
22-03-1350 Intake, Ungated, 4", LH Side

LEFT SIDE -- 4" UNGATED INTAKE

One (1) 4" ungated suction intake shall be installed on the left side pump panel to supply the fire pump from an external water supply. The threads shall be 4" NST male threads.

The intake shall be provided with a removable screen.

One (1)
22-41-6100 Cap, 4", Chrome Long Handle

A 4" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

One (1)
20-05-2809 Pump Seal, Mech, Darley, HM PTO



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MECHANICAL SEAL SPECIFICATIONS

The mechanical seal shall be formed from silicon carbide with welded springs. The stationary face of the mechanical seals shall be made from silicon carbide, an extremely hard and heat dissipative material, which resists wear and dry running damage.

One (1)
20-05-3309

Pump Shift, Darley, Elec, PTO, Stationary

PTO PUMP SHIFT SPECIFICATIONS

An electric powered PTO pump shift shall be installed in the cab driver's area where not subject to accidental engagement. The pump shift system shall permit stationary pumping operations.

The following indicator lights shall be included with pump shift.

1. A green indicator light, labeled "PUMP ENGAGED" shall indicate pump shift has successfully been completed.
2. A green indicator light, labeled "OK TO PUMP" shall indicate the chassis transmission is in proper gear and parking brake is engaged.
3. Pump shift and interlocks shall comply with applicable sections of NFPA standards.
4. The pump shift shall have an instruction label and nameplate to indicate proper pump shift instructions.

One (1)
27-10-3401

Pressure Governor, FRC, In-Control, w/Body, TGA300

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING

A Fire Research InControl series TGA300 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- Pressure / RPM setting; shown on a dot matrix message display
- Pressure and RPM operating mode LEDs



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- Throttle ready LED
- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control panel. There shall be an USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine



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RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine.

One (1)
20-29-1402
Primer, Trident Air Primer, Manual

PRIMER

The priming pump shall be a Trident Emergency Products compressed air powered, high efficiency, multi-stage, venturi based AirPrime™ System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump. The priming system shall have a five year warranty.

One (1)
20-29-1252
Primer Control - Main Pump Manual Push Button

PRIMER CONTROL

A manual push button shall be provided on the pump operator's panel, for the manually priming the main pump.

One (1)
21-00-1100
Piping, SST

PUMP PLUMBING SYSTEM

The fire pump plumbing system shall be of rigid stainless steel piping or flexible piping with stainless steel fittings. Victaulic couplings shall be installed to permit flexing of the plumbing system and allow for quick removal of piping or valves for service. Flexible hose couplings shall be threaded stainless steel or Victaulic connections.

The fire pump and plumbing shall be hydrostatically tested in compliance to applicable sections of NFPA standards, with test results submit with the delivery documentation.

One (1)
21-01-5650
Intake Manifold, Stainless Steel

STAINLESS STEEL INTAKE MANIFOLD



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The suction manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute.

The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible Victaulic coupling.

The stainless steel manifold assembly shall have a ten (10) year warranty.
Discharge Manifold, Stainless Steel

One (1)
21-01-6650

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold assembly shall be fabricated with minimum of Schedule #10 Type 304 stainless steel. All threaded fittings shall be a minimum of Schedule #40 stainless steel. The discharge manifold assembly shall have radiused sweep elbows to minimize water turbulence. The manifold shall be welded and pressure tested prior to installation. The stainless steel manifold inlet shall be attached to the pump discharge and have additional brackets as required to support the discharge manifold, valves and related components.

The stainless steel manifold assembly shall have a ten (10) year warranty.
Screens/Anodes, Pump

One (1)
21-00-2050

PUMP ANODES

There shall be sacrificial, zinc anodes in the pump steamer ports which shall protect the pump and piping from electrolysis. These anodes shall also act as screens.

Pump Drain, Master, Manifold, Push Pull Type

One (1)
21-01-0250

FIRE PUMP MASTER DRAIN

The fire pump plumbing system and fire pump shall be piped to a single push-pull type master pump drain assembly.

ADDITIONAL LOW POINT DRAINS



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The plumbing system shall be equipped with additional low point manually operated drain valves to allow total draining of the fire pump plumbing system. These valves shall be accessible from the side of the vehicle and labeled.

One (1)
21-01-5500 Intake Manifold, Stainless Steel

STAINLESS STEEL INTAKE MANIFOLD

The suction manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute. The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible Victaulic coupling.

One (1)
21-01-6500 The stainless steel manifold assembly shall have a ten (10) year warranty.
Discharge Manifold, Stainless Steel

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold assembly shall be fabricated with minimum of Schedule #10 Type 304 stainless steel. All threaded fittings shall be a minimum of Schedule #40 stainless steel. The discharge manifold assembly shall have radiused sweep elbows to minimize water turbulence. The manifold shall be welded and pressure tested prior to installation. The stainless steel manifold inlet shall be attached to the pump discharge and have additional brackets as required to support the discharge manifold, valves and related components.

One (1)
21-01-7100 The stainless steel manifold assembly shall have a ten (10) year warranty.
Painting, Pump & Piping, Silver

FIRE PUMP & PLUMBING SYSTEM PAINTING

The fire pump and plumbing system shall be painted by the fire apparatus manufacturer. The fire pump and the plumbing shall be painted metallic silver.

One (1)
21-01-8100 Threads, National Hose (NST)

HOSE THREADS



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The hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intakes and discharges.

One (1)
22-52-0310 Tank-To-Pump, Water Tank, 3", PTO

WATER TANK TO PUMP LINE

A 3" water tank to fire pump line shall be provided with a full flow quarter turn ball valve, 3" piping, and with flex hose and stainless steel hose clamps. The tank to pump line shall be equipped with a check valve to prevent pressurization of the water tank.

The line shall be flow tested during the fire pump testing and shall meet applicable requirements of NFPA standards.

One (1)
24-62-1500 Valve, AKR, 8000, (3")

The valve shall be an Akron 8000 Series three-inch (3") valve with a stainless ball.
Intk Vlv Cntrl, Pull Rod, 1/4 Turn, AKR - IC

One (1)
22-55-4012

An Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature shall be provided on the intake. The handle shall be equipped with a color-coded name plate.
Tank Fill/Cooling Line, Water Tank, 2"

One (1)
23-02-2300

FIRE PUMP TO WATER TANK FILL LINE

A 2" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 2" piping and flex hose to tank. The valve control handle shall have a nameplate located near the valve control.

One (1)
24-62-1200 Valve, AKR, 8000, (2")

The valve shall be an Akron 8000 Series two-inch (2") valve with a stainless ball.
Intk Vlv Cntrl, Pull Rod, 1/4 Turn, AKR - IC

One (1)
22-55-4012

An Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature shall be provided on the intake. The handle shall be equipped with a color-coded name plate.
Pump Instln, Midship PTO, By Bdy Bldr

One (1)



Velocity Fire Equipment Sales

20-30-3200

MIDSHIP FIRE PUMP DRIVESHAFTS AND INSTALLATION

The midship PTO fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. The PTO drive shaft(s) shall be spin balanced prior to final installation.

One (1)
20-30-8402

Manifold Discharge Port

MANIFOLD PORT

There shall be a 2-1/2" discharge port installed on the manifold for the future installation of a discharge.

One (1)
20-31-1400

Pump Test, Factory Test Only

FACTORY FIRE PUMP TEST

The fire pump shall undergo factory pump certification tests per applicable sections of NFPA standards, prior to delivery of the completed apparatus.

One (1)
20-31-4100

The factory pump testing certificate shall be furnished with the apparatus on delivery.
Pump Cooler, Bypass-To-Tank, 3/8"

FIRE PUMP COOLING

The fire pump shall be equipped with 3/8" cooling line from the pump to the water tank. This re-circulation line shall be controlled by a pump panel control valve with nameplate label noting it as the "fire pump bypass cooler". There shall be a check valve installed in the pump cooler line to prevent tank water from back flowing into the pump when it is not in use.

One (1)
20-31-5100

Heat Exchanger, Engine, Hook-Up Only

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually opened valve, mounted at the operator's panel, shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator

10017-0006



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cooling hose. The system shall provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant.

A nameplate label shall be installed on the pump panel noting "engine cooling system" with "on-off" opening directions noted.

One (1)
23-09-4102
Dschg, 2-1/2", Left Side, Pump Panel, NST

LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the left side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

One (1)
21-01-2502
Drain/Bleeder, IC Lift-Up, Manual 1/4 Turn - Spec Only

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1)
24-02-1200
Elbow, 2-1/2"F x 2-1/2" NST M, Chrome

One (1) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

One (1)
24-03-1400
Cap, 2-1/2", NST Chrome, Rocker Lug, w/Chain

One (1) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

One (1)
24-61-1254
Valve, AKR, 8000, (2-1/2")

The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

One (1)
24-53-0020
Discharge Valve Control, Pull Rod, 1/4 Turn, SM, AKR - IC w/Gauge

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with



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recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1)
27-02-1500 Gauge, Discharge, IC, 2-1/2" (0-400 PSI), WF

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

One (1)
23-10-4102 Dschg, 2-1/2", Right Side, Pump Panel, NST

RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

One (1)
21-01-2502 Drain/Bleeder, IC Lift-Up, Manual 1/4 Turn - Spec Only

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1)
24-02-1200 Elbow, 2-1/2"F x 2-1/2" NST M, Chrome

One (1) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

One (1)
24-03-1400 Cap, 2-1/2", NST Chrome, Rocker Lug, w/Chain

One (1) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

One (1)
24-61-1254 Valve, AKR, 8000, (2-1/2")



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The specified valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

One (1)
24-53-0020 Discharge Valve Control, Pull Rod, 1/4 Turn, SM, AKR - IC w/Gauge

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1)
27-02-1500 Gauge, Discharge, IC, 2-1/2" (0-400 PSI), WF

One (1) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

S One (1)
23-11-1100 Manifold Discharge Port

Previsions for future installation discharge

2-1/2" discharge Port shall be installed on manifold for future installation of a discharge .

Drivers side of manifold

One (1) == Tanker-Side Mount Pump Compt - 4212.023 04/21/23 ==

One (1)
26-02-4100 Pump Enclosure, Side Mount, Front Compt Tanker Style

SIDE MOUNT PUMP ENCLOSURE

All pump suction and discharge controls are to be mounted on the driver side pump operator's panel so as to permit operation of the pump from a central location. The control panel shall be



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located in front of the left side lower compartment of the apparatus. Panel shall house pressure gauge and controls for the pump, including throttle. Panel shall have an anodized aluminum shield with adequate illumination for nighttime operation. The lights shall be controlled by the operator's panel light switch. The valve controls shall be neatly arranged for access and visibility. All controls shall be clearly marked with permanent type labels and color-coded. The electrical wiring and all gauge lines shall be properly tie wrapped to prevent kinking or cutting of the lines.

The following controls and equipment as specified in the specifications, shall be provided on the pump panel or within the pump enclosure:

- Primer.
- Pump and plumbing area service lights.
- Pressure control device and throttle control.
- Fire pump and engine instruments.
- Pump intakes and discharge controls.
- Master intake and discharge gauges.
- Tank fill control.
- Tank suction control.
- Water tank level gauge.
- Pump panel lights.

One (1)
26-35-7400 Pump Panel, Black LineX, LH, SM

PUMP PANEL -- SIDE MOUNT

The left hand pump panel shall be constructed of black LineX coating aluminum material and be fastened to the pump enclosure with 1/4" stainless steel bolts.

The instrument area shall have a stainless steel continuous hinge that shall swing for easy access to gauges.

One (1)
26-35-1100 Pump Panel, Bolted, LH

LEFT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the left hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts.

One (1)
Labels, Test Data and Safety Placards



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26-55-1100

LABELS

Safety, information, data, and instruction labels for apparatus shall be provided and installed at the operator's instrument panel.

The labels shall include rated capacities, pressure ratings, and engine speeds as determined by the certification tests. The no-load governed speed of the engine, as stated by the engine manufacturer, shall also be included.

The labels shall be provided with all information and be attached to the apparatus prior to delivery.

One (1)
26-55-2050

Labels, Color Coded

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards.

Permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

One (1)
26-56-2000

Pump Panel Light (1), Actuated w/Pump Engagement

PUMP ENGAGED LIGHT

One (1) pump panel light shall be illuminated at the time the fire pump is engaged into operation.

The remaining lights shall be controlled by a switch located on the operator's instrument panel.

One (1)
26-56-5600

Pump Panel LED Lights, (3) Tecniq E10-W0001-1, Midship LH Switch Operator Panel

MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE

Three (3) Tecniq E10-W0001-1 or equal LED lights with clear lenses shall be installed under an instrument panel light hood on the left side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

One (1)
27-01-4150

Gauge, Test Taps

10017-0006

01/22/24



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TEST TAPS

Test taps for pump intake and pump pressure shall be provided on the pump instrument panel and be properly labeled.

One (1)
27-35-1102

Water Tank Gauge, FRC, TankVision Pro 300, Pump Panel WLA300-A00

WATER TANK GAUGE

A Fire Research TankVision Pro model WLA300-A00 tank indicator kit shall be installed on the pump panel. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall place on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

One (1) == LL/LR Single Axle Pumper/Tanker - 4212.023 04/21/23 ==

One (1)
25-25-0720

Water Tank, 2000 Gallon, Tanker, Poly

WATER TANK - 2000 GALLON

The apparatus shall be equipped with a two thousand (2000) gallon polypropylene water tank. The tank shall be equipped with a four-inch (4") overflow pipe (a six-inch (6") overflow pipe shall be provided if required by dump valve installation).

One (1)
25-25-0060

Water Tank, "T" Tank



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WATER TANK

One (1)
25-44-1400
The apparatus shall be equipped with a "T" shaped tank.
Water Tank, Fill Tower, 10" x 10", <3500 Gals

WATER TANK FILL TOWER

One (1)
25-62-7210
A fill tower measuring approximately 10" x 10" square shall be provided on the water tank up to and including 3500 gallons total capacity.
Quick Dump, Rear 10", External Mount w/Swivel

QUICK DUMP - REAR

One (1)
25-62-2100
A Newton 10" quick dump valve shall be provided and externally mounted. The location shall be at the center rear of the apparatus.
Quick Dump, Rear 10", Manual Open/Close Controls

One (1)
25-62-7610
A manual operated lever control shall be used to open and close the rear dump valve.
Quick Dump, Rear 10", Painted Steel

One (1)
25-62-7700
The Newton dump valve installed on the water tank shall be painted grey.
Quick Dump, Rear, Swivel Dump

A swivel dump shall be fabricated with .125" aluminum and attached to the Newton Quick Dump.

The swivel dump shall have the ability to dump water from the driver's side or the officer's side and any point in between. The swivel dump is 70 inches long when fully extended. The swivel dump shall have an extension that is hinged and can be folded up when the dump is not in use. The dump shall have the ability to be stowed on either the driver's side or the officer's side of the truck. The latch that holds the extension in the stowed position shall also help support the swivel dump extension.



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When the extension is in the down and extended position, there shall be no less than a 34 inch clearance from level ground to the bottom of the dump to ensure that there is enough clearance for the swivel dump to offload into all portable drop tanks.

The dump shall meet NFPA requirements for water delivery on three sides of the vehicle.
Direct Tank Fill, 2-1/2" Right Rear

One (1)
25-50-2500

DIRECT TANK FILL

A 2-1/2" diameter direct tank fill inlet shall be provided, including a 2-1/2" female NH swivel, plug and screen.

The valve shall be located and controlled on the right side rear of body.
Valve, AKR, 8000, (2-1/2")

One (1)
24-62-1250

The valve shall be an Akron 8000 Series two and one half-inch (2-1/2") valve with a stainless ball.

One (1)
22-55-4050
Intk Vlv Cntrl, AKR, Mnl Swing Type-Adjacent

The valve shall be equipped with a manually operated, swing-type manual control located adjacent the intake. The valve shall be equipped with a color-coded name plate.

One (1)
25-50-2670
NH 2-1/2" Swivel, Plug & Screen

The direct tank fill inlet shall include a 2-1/2" female NH swivel, plug and screen.
Hosebed, Grating, Extruded Alum, <180" Long

One (1)
29-10-1000

HOSEBED SINGLE AXLE

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 6" wide and shall be welded into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

The apparatus hose body shall be properly reinforced without the use of angles or structural shapes and free from all projections that might injure the fire hose.



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The main apparatus hose body shall run the full length of the apparatus body from behind the pump panel area to the rear face of the body.

The upper rear interior of the hose body on the right and left sides shall be overlaid with brushed stainless steel to protect the painted surface from damage by hose couplings.

One (1)
29-10-5100
Hosebed, Storage Capacity, 55 Cubic Feet, Minimum

HOSE BED STORAGE CAPACITY

The hose bed shall be designed to have a storage capacity for a minimum of 55 cubic feet of fire department supplied fire hose.

One (1)
29-20-2000
Hosebed Cover, Vinyl, <180" L, <74" W, Velcro

VINYL HOSEBED COVER

The apparatus shall be equipped with a vinyl hosebed cover.

The cover, approximately 74" wide, shall be secured utilizing a velcro fastening system at the front and sides of the hosebed body.

One (1)
29-20-5600
Vinyl Cover, Color, RED

The vinyl cover shall be red in color.

One (1)
30-00-0000
BODY CONSTRUCTION

One (1)
30-01-1899
Body Construction - Rosenbauer FXR - 1/8" Alum - SA Pumper/Tanker

1/8" ALUMINUM BODY

The body shall be fabricated of aluminum extrusions, smooth aluminum sheet and aluminum treadplate.

The aluminum extrusion alloy shall be 6061 with a temper rating of T6, and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds. The aluminum extrusions shall 3" x



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3" aluminum tubing, 1-3/4" x 3" aluminum tubing and 3" x 3" aluminum angle and specially designed extrusions, up to .250" wall thickness where applicable.

The smooth aluminum sheet material alloy shall be 5052 with a temper rating of H32, and have a tensile strength of 33,000 PSI and yield strength of 28,000 pounds.

The aluminum treadplate alloy shall be 3003 with a temper rating of H22, and have a tensile strength of 30,000 PSI and yield strength of 28,000 pounds.

The extrusions shall be designed as structural-framing members with the smooth aluminum and treadplate fabricated to form compartments, hosebeds, and floors. All aluminum material shall be welded together using the latest mig spray pulse arc welding system.

Compartment floors shall be of the sweep out design with the floor higher than the compartment door lip and to be water and dust proof. All compartments shall be made to the maximum practical dimensions to provide maximum storage capacity. To ensure maximum storage space, the apparatus shall be constructed without any void spaces between the body and the compartment walls. Double wall construction does not meet this requirement.

All exterior compartments shall have polished aluminum drip moldings installed above the doors where necessary to prevent water from entering the compartments.

Wheel well panels shall be formed aluminum that is welded in place. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. To fully protect the wheel well area from road debris and to aid in cleaning, a full depth radius wheel well liner shall be provided. The frame side of the wheel well area on each side of the opening shall be attached to the frame side of the front and rear compartments. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartments.

The rear wheel wells shall be radius cut for a streamlined appearance. A fenderette shall be furnished at each rear wheel well opening, held in place with stainless steel fasteners.

FASTENERS

All aluminum and stainless steel components shall be attached using stainless steel fasteners.



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Compartment door hinges, handrails and running boards shall be attached using minimum 1/4" diameter machine bolt fasteners.

3/16" diameter fasteners shall only be used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc.

Electrolysis Corrosion Control

One (1)
30-01-2250

ELECTROLYSIS CORROSION CONTROL

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

All 1/4" diameter and smaller screws and bolts shall be stainless steel.

Due to the expected life of the vehicle, proposals will only be acceptable from manufacturers that include these corrosion features.

Smooth Alum Compt Floors

One (1)
30-02-2200

COMPARTMENT FLOORS

The compartment floors shall be constructed of smooth aluminum material, to match the compartment interior walls.

Sub-Frame, Hot-Dip Galv

One (1)
30-10-1100

GALVANIZED SUB-FRAME

The apparatus body subframe shall be constructed entirely of heavy steel structural channel material.

Two full frame lengths, three-inch (3") 3.4 pound per foot longitudinal steel channels shall form the sides of the body subframe and sides of the water tank cradle. Subframe crossmembers shall be fabricated with three inch (3") 3.4 pound per foot heavy steel channel cross members welded to the longitudinal body subframe sides and the full length frame pads.



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Two full frame length 1/2" x 3" flat steel frame pads shall be attached to the body subframe and rest on top of the chassis frame rails for proper frame weight distribution.

The steel frame pads, longitudinal steel channels and subframe crossmembers shall be attached to the chassis frame rails using heavy "U" bolt fasteners to allow removal of the subframe and body assembly from the chassis. There shall be a barrier provided between the subframe and body to prevent electrolysis.

The rear subframe and lower body platform support members shall be of the "two piece" design, fabricated of 3.4 lb. per foot heavy channel and welded to the full length subframe channel liners at the rear.

A minimum of two rear platform support channels shall be provided and constructed of 3.4 lb. Per foot heavy steel material. Each support channel shall have welded in gusset where the support meets the rear subframe rails.

After fabrication the entire subframe assembly shall be hot dip galvanized to prevent corrosion. p The hot dip galvanized subframe shall have a lifetime warranty against failure due to corrosion.

This steel subframe shall carry the weight of the apparatus body, tank, water and equipment. This method of apparatus construction gives an excellent strength/weight ratio.

One (1)
31-01-1209

Body, Formed Alum, Pumper/Tanker , 163"

BODY CONFIGURATION

The formed apparatus body shall be up to 160" long, reference the drawing for actual body length.

One (1)
44-06-2209

Whl Well Panel, Alum Pntd, Sngl Axle - Alum

SINGLE AXLE WHEEL AREA

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth plate that is welded in place.



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To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 25") radius wheel well liner shall be provided. Wheel well liner shall be smooth aluminum to prevent corrosion.

One (1)
44-06-4100

Fenderette, Polished Aluminum

FENDERETTES

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners.

One (1)
31-01-2109

98" OAW, 25" Lower Depth Both Sides, SA LL/LR

BODY WIDTH

The overall width of the pumper body shall not exceed 98".

COMPARTMENT DEPTH

The lower portion of the side compartments on the pumper body shall be 25" deep.
Hosebed, Pumper, <180" L, 68" Wide

One (1)
29-00-1209

HOSEBED WIDTH

The width of the pumper body hosebed shall be 68".
Compt Height, 33" High Left

One (1)
32-03-0033

COMPARTMENT HEIGHT

The left side body compartments shall be 33" high.
Compt Height, 33" High Right

One (1)
32-03-1033

COMPARTMENT HEIGHT

The right side body compartments shall be 33" high.
Roll-Up Doors - ROM Mfg

Two (2)
30-02-1150

10017-0006



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ROLL UP DOOR CONSTRUCTION

The roll up door(s) shall be fabricated from aluminum extrusions and be manufactured and assembled in the United States.

The door slats shall be double-wall extrusions with dimensions of 1.366" high x .315" thick. The exterior surface shall be flat and the interior surface concave to deflect loose equipment to prevent the door from jamming. Each slat shall have interlocking end shoes to prevent the slat from moving side to side resulting in binding of the door. Each slat shall be separated by a co-extruded PVC and rubber inner seal to prevent metal to metal contact and minimize dirt and moisture from entering the compartment. The inner seal shall not be visible from the exterior to maintain a clean appearance of door. The slats shall have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects.

The track shall be a one (1) piece aluminum assembly that has an attaching flange and finishing flange incorporated into the design that facilitates installation and provides a finished look to the door without additional trim or caulking. A low profile side seal shall be utilized to maximize usable compartment space.

A drip rail designed to prevent water from dripping into the compartment shall be provided. The drip rail shall have a built in replaceable non-contacting seal to eliminate scratching of the surface of the door.

Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door and have "V" shaped double seal to prevent water and debris from entering the compartment. The door latch system shall be a full width one (1) piece lift bar that enables the user to operate with one hand.

The roll mechanism shall have a clip system that connects the curtain slats to the operator drum to allow for easy tension adjustment without tools. A four (4) inch diameter counterbalanced operator drum to shall be incorporated to assist in lifting the door.

Ahead Rear Wheels - Low Comp't - Roll Up Door - Natural Finish

One (1)
32-05-1039

LEFT FRONT COMPARTMENT



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There shall be one (1) low compartment located ahead of the rear wheels. The compartment shall be equipped with a low single natural finish roll up door.

The compartment shall be equipped with the following:

One (1)
44-40-1100 Vents, Compts, Louvers, Includes Filters (Ea)

One (1) louver with filter shall be installed in the compartment.
One (1)
45-01-1050 Shelving Tracks, (2) Unistrut, Alum

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1)
55-01-4009 Strip Light, LED Light (2) Ea Compartment (approx 12")

COMPARTMENT LIGHT

Two (2) vertically mounted LED strip lights shall be installed inside the compartment. The lights shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup and each light shall be approximately 12" in length.

One (1)
55-06-1409 Compartment Light, Door Switch, Magnetic, Ea

The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

One (1)
32-06-1039 Ahead Rear Wheels - Low Comp't - Roll Up Door - Natural Finish

RIGHT FRONT COMPARTMENT

There shall be one (1) low compartment located ahead of the rear wheels. The compartment shall be equipped with a low single natural finish roll up door.

The compartment shall be equipped with the following:

One (1)
44-40-1100 Vents, Compts, Louvers, Includes Filters (Ea)

One (1) louver with filter shall be installed in the compartment.



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One (1)
45-01-1050 Shelving Tracks, (2) Unistrut, Alum

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1)
55-01-4009 Strip Light, LED Light (2) Ea Compartment (approx 12")

COMPARTMENT LIGHT

Two (2) vertically mounted LED strip lights shall be installed inside the compartment. The lights shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat buildup and each light shall be approximately 12" in length.

One (1)
55-06-1409 Compartment Light, Door Switch, Magnetic, Ea

The compartment light will be controlled by a magnetic "On-Off" switch located on each compartment door.

One (1)
33-60-1109 Rear Body - Flat Back

REAR BODY CONFIGURATION

The rear of the apparatus body shall be of the flat back design.
No Rear Compt

One (1)
32-08-0600

REAR COMPARTMENT

There shall be no compartment located on the rear of the body.
Rear Step - Pumper/Tanker Body - Bolt-On - 12"

One (1)
33-61-1300

REAR STEP - 12" BOLT-ON

A 12" deep step surface shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The tailboard shall be constructed of .188" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.



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A label shall be provided warning personnel that riding on the rear step while the apparatus is in motion is prohibited.

One (1)
90-03-0300 Ladders, Provided By Dealer

LADDER SOURCE

New ground ladders shall be provided by the dealer.
Suction Hose Tray, Driver Side Over Cmpts (Ea)

Two (2)
90-25-7100

HARD SUCTION MOUNTING

Two (2) horizontally mounted aluminum hard suction hose tray with velcro straps shall be provided above the driver side body compartments.

One (1)
90-25-9115 Suction Hose Provided By, Body Builder, SD

SUCTION HOSE SOURCE

New suction hose shall be provided by the body builder.
Folding Tank Mounting, Fold Down Enclosed, Passenger Side, Painted Match Body

One (1)
90-30-3400

PORTABLE WATER TANK MOUNTING BRACKET

There shall be a fully enclosed folding tank storage carrier provided on the passenger side of the booster tank and above the lower compartments to carry a portable folding tank. The tank carrier shall hold the folding tank in the vertical position for travel, and fold down over the lower body side for loading and unloading. The folding tank carrier shall be fabricated of smooth aluminum painted to match the body side and have polished aluminum treadplate end caps. There shall be a hinged bracket that is bolted to the top of the lower compartments with rubber stops to prevent the folding tank carrier from touching the body side when in the down position. There shall be a reinforcement plate installed on the compartment top where the folding tank carrier is attached. There shall be two heavy-duty clamps provided to hold the tank in the travel position.

One (1) == Tanker - Common Body Parts - 4212.023 04/21/23 ==

One (1)
44-01-1450 Bdy Trim, Frnt Cmpt, Ht of Side Cmpts, Alum T/P



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FRONT BODY PROTECTION PANELS

Aluminum tread plate overlays and panels shall be installed on the front of the body compartment from the lower edge to the top of the compartment doors.

One (1)
44-01-4000 Bdy Trim, Entire Rr Bdy, Smooth for Chevron Stripe

REAR BODY PROTECTION PANELS

The rear body panels of the body shall be a smooth material, to allow for the proper application and installation of a "Chevron" stripe on the rear.

One (1)
44-01-6000 Catwalks Top of Side Cmpts, Alum Treadplate

CATWALKS

Aluminum tread plate catwalks shall be installed on the top of the compartments.

One (1)
33-70-1300 Handrails - Rear Step - Vertical - 48" - Pair

HANDRAIL REAR STEP

Two (2) extruded aluminum non-slip handrails, approximately 48" in length, shall be provided and vertically mounted on the rear of the apparatus, one (1) on each side of the body.

Handrails on EZ climb ladder

One (1)
33-70-2100 Handrails - Below Hosebed - Horizontal - 48"

HANDRAIL BELOW HOSEBED

One (1) extruded aluminum non-slip handrail, approximately 48" in length, shall be provided and horizontally mounted below the hosebed on the rear of the apparatus.

One (1)
38-90-2050 Access Ladder, Rosenbauer EZ Climb, Left Rr

ACCESS LADDER EZ CLIMB - LEFT REAR

There shall be a swing out and down access ladder supplied and installed on the apparatus, for accessing the top of the apparatus. It shall be of an all aluminum design and shall incorporate



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treads six (6") inches deep and no more than eighteen (18") inches apart. The ground to the first step dimension, on level ground, shall be no more than twenty-four (24") inches.

The access ladder shall have integrated hand holds in the steps, to aid in the ascent/descent of the ladder.

When in the deployed position the ladder shall have an angle of approximately 75-degrees to facilitate ascending and descending the ladder. The ladder shall be retained in the stowed and deployed position by two (2) gas cylinders and shall not require the use of latches to hold it in position.

One (1)
44-02-1100 Rub Rails, Lwr Bdy, Extrd Alum

EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel.

One (1)
44-02-2000 Rub Rails, Spacers, Nylon

NYLON SPACERS FOR RUB RAILS

There shall be nylon spacers provided between the rub rail and the body. This shall allow wash out and replacement in the event of damage.

One (1) == Pumper/Tanker-AC Electrical System - 4212.023 04/21/23 ==

One (1) == Paint / Stripe - Tanker Body - Single Axle - 4212.023 04/21/23 ==

One (1)
80-05-0950 Bdy Paint, Single Axle, Pumper/Tanker - Single Color

BODY PAINT PROCESS

All paint contains a film forming component, a solvent thinner, and a pigment. In conventional paint the film forming component and pigment are deposited on the surface as the solvent evaporates. In polyurethane paint, however, the film is formed when isocyanate, a chemical unique to polyurethane paint, becomes a plastic like substance. In one component polyurethane paint, this happens as isocyanate reacts with moisture in the air. In two component paint, a



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moisture curing chemical is added. Polyurethane paint has excellent performance characteristics: adhesion, hardness, gloss, flexibility, and resistance to abrasion, impact, weathering, acids and solvents.

The paint must have:

- High gloss retention and DOI
- Strong UV properties to resist fading
- Strong Chemical resistance
- Strong Chip resistance
- A 3.5lbs/gal VOC content or less (green component)
- A proven durability in the commercial fleet industry

Please note, that because of the importance of proper paint preparation and application, any differences in materials, preparations or procedures must be noted and explained in detail. Non-compliance with this requirement will result in immediate rejection of entire bid response.

FACILITY CERTIFICATION

The paint facility shall be in current compliance with 40 CFR (code of federal regulations) part 63 subpart HHHHHH national emission standards for hazardous air pollutants: Paint stripping and miscellaneous surface coating operations at area sources (6H-NESHAP). Spray guns shall also be compliant certified by paint gun manufacturer.

PAINTER CERTIFICATION

All painters shall be certified. Documentation shall be available upon request.

Training documentation shall include:

- Spray gun set up and usage
- Spray gun maintenance
- Hands on practical use of HVLP and RP Equipment
- Cycle time reductions and improving productivity with correct equipment and usages
- Air volume requirements
- Air filtration and filter maintenance
- Supplied air respiration
- CO monitor requirements
- Spot repair procedure
- RPS cups



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MODULE PREP

Prior to assembly, all joints and seams are to be mechanically etched. All welds shall be ground smooth prior to priming. The bare substrate of the module is first cleaned with a strong surface cleaner to remove fabrication and pneumatic tool oils. The reason? Cleaning the surface prior to sanding prevents oils and contaminants from being imbedded into the substrate. After sanding process, a mild surface cleaner removes any sanding dust residue along with pneumatic tool oil. A waterborne surface cleaner is available in case substrate was touched with bare hands or skin.

The following steps must be followed in sequence to properly apply paint to the Fire truck cab, chassis or module.

SURFACE PREP

- Clean entire modular body with Sikkens OTO using the two-cloth method, wipe on wet, wipe dry. Reason: Wiping our surface cleaners on wet, contaminants loosen and float to the top. Those floating contaminants then get wiped off with an absorbent towel.
- Using an orbital sander, (where polyester filler will be applied) 80 grit is used to provide a mechanical tooth for optimal adhesion. 180 grit is then used surrounding the 80 grit area. Sikkens M600 surface cleaner is then used to remove sanding dust and pneumatic tool oil. If bare hands or skin accidentally touched the surface, Sikkens Autoprep waterborne cleaner is used to remove natural oils.
- Again: All surface cleaners are applied wet with one towel and wiped dry with another. Rosenbauer approved polyester body filler is then applied over the 80 grit ground areas to cover the imperfections from welds. When body filler dries, it's first sanded with 80 grit then finish sanded with 180 grit to remove all 80 grit sand scratches. Blow off surface dust using approved air wand.
- After body work has been completed, the rest of the aluminum substrate on module gets sanded with 180 grit sandpaper until the surface is bright and sand scratches are consistent.
- Module get's blown off again to remove all sanding dust.
Step 1 is essential in achieving proper adhesion.

EPOXY PRIMER and HIGH BUILD primer surfacer APPLICATION PROCESS:

- o First, if sanded aluminum substrate has not been primed within 8 hours, aluminum substrate gets re-abraded to remove oxidation that may have begun on aluminum surface.
- o Aluminum substrate gets cleaned with Sikkens M600 surface cleaner using the 2



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towel method.

- o Surface cleaners do not get applied over body filler due to polyester filler being absorbent.
- o 1 coat of AkzoNobel LV262 Epoxy primer is applied. This epoxy primer slows down corrosion from happening if in case the unit (once out in the field) has stone chips or scratches down to aluminum.
- o This product is a 2 component epoxy primer meaning it mixes with a hardener.
- o Paint technicians are trained to properly apply this product to achieve a minimum of 1 mil DFT (Dry film thickness) required by AkzoNobel. A blank module schematic showing specific areas to measure dry film thickness is completed on each module /unit.
- o Allow LV262 25 minutes minimum dry time prior to applying AkzoNobel LV650 primer surfacer.
- o Apply two to three wet coats of AkzoNobel LV650 two component low VOC high build primer surfacer.
- o A dry film thickness of up to 8 mils can be achieved prior to sanding.
- o Minimum flash between coats is 30 seconds to 5 minutes.
- o LV650 surfacer dries 3 different ways. 8 hour dry without accelerator, bake for 1 hour at 140° or accelerate which allows technicians to sand in 45 minutes @70°.

SANDING

- o Block sand entire module with 320-grit sandpaper minimizing any accidental cut throughs on edges.
- o Blow off body with air gun and move module into paint booth.

PRE TOPCOAT PREPARATION

- o Clean areas where Rosenbauer approved seam sealer is applied with Sikkens M600 surface cleaner. If by accident, bare hands or skin touched surface on cab or module, Autoprep waterborne cleaner is used on these areas prior to using M600 cleaner. Both cleaners are used with the 2 towel method.
- o Seam seal with Rosenbauer approved non-shrinking moisture cured urethane seam sealer. Technicians follow seam sealer technical data sheets pertaining to application and dry times prior to applying AkzoNobel BT650 basecoat or 650 Topcoat single stage paint.
- o Clean module with M600 surface cleaner. If by accident, bare hands or skin touched surface on module, Autoprep waterborne cleaner is used on these areas prior to using M600 cleaner. Both cleaners are used with the 2 towel method.



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- o If there are any visible cut throughs, paint techs first use a pre-treatment Alodine wipe followed by one coat of reduced LV262 epoxy primer over these areas and give a 20 minute flash prior to applying BT650 basecoat or Topcoat.
- o Tack rag unit to remove any lint or dust that could have landed on surface.

TOPCOAT PROCEDURE

- o Mix BT650 basecoat or Topcoat (single stage) polyurethane paint.
- o Fluid and spray pattern checks are done prior to applying BT650 base, Topcoat and Clear coat.
- o Apply BT650 basecoat until complete coverage is achieved. If Topcoat is applied, a minimum of 1.8 mils is recommended after cut and buff procedure. Note: Topcoat doesn't get clear coated.
- o Allow solid color BT650 basecoat to flash 20 minutes prior to applying 3 coats Sikkens LV651 Glamour
- o Clear coat. If a metallic color, allow BT650 basecoat to flash 45 min. prior to applying 3 coats LV651
- o Glamour Clear coat. Bake body for 45 minutes once surface temp has reached 140 degrees.

The mil thicknesses are as follows:

Autocoat BT LV262 Epoxy Primer	1.0 to 1.5 mils
Autocoat BT LV650 2K Primer Surfacer	1.0 to 3.0 mils
Autocoat BT LV650 Basecoat color	1.0 to 1.8 mils
Autocoat LV651 Clearcoat	<u>2.0 to 3.0 mils</u>
Combined total:	5.0 to 9.3 mils

One (1)
80-06-1100

APPARATUS COLOR

Match chassis

One (1)
80-30-1100 Compt Finish, Spatter Coat, Up to 6 Compts

INTERIOR COMPARTMENT FINISH

Six (6) apparatus side compartment interiors are to be painted with a spatter finish material. The compartments shall be cleaned with a grease remover, and then the surface sanded and prepared for painting. The compartment shall be provided with two (2) coats of white epoxy. The



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One (1)
80-40-2000 compartments are then coated with a splatter paint top coat.
Paint, Chassis Wheels, Single Axle

WHEEL PAINTING

One (1)
80-42-1500 The front and rear wheels shall be finish painted to match the apparatus body. Wheels shall be properly prepared and finished with primer coats and top coats as specified.
Body Paint, Touch Up, 2 oz. Bottle, One Color

TOUCH-UP PAINT

One (1)
80-50-1800 One (1) two (2) ounce bottle of touch-up paint shall be furnished with the completed truck at final delivery.
Lettering, 4" Mylar Gold Leaf, Seventy-Five (75) Letters

SIMULATED GOLD LEAF LETTERING

The lettering shall be applied in simulated gold leaf material, shaded in black and encapsulated in clear Mylar.

One (1)
80-70-1300 A quantity of seventy-five (75), four (4) inch letters are to be placed on the cab and on the body as directed by the customer.
Stripe, Single Reflective, 4", Straight Design

CAB AND BODY STRIPE

One (1)
80-75-1600 A straight Scotchlite reflective stripe, 4" in width, shall be applied horizontally around the cab and body in compliance with applicable NFPA 1901 standards. The purchaser shall specify the color and location of the stripe.
Reflective Stripe Material, White

COLOR OF STRIPING MATERIAL

One (1)
80-72-1108 The color of the 3M brand striping material shall be white.
Stripe, Reflective, Oralite V98, Chevron Pattern Entire Rear Red/Yellow



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CHEVRON STRIPING

The entire rear portion of the body shall have Oralite V98 reflective red and yellow striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

One (1)
80-79-1000

NFPA Standing / Walking Surfaces Yellow Safety Tape (NFPA 15.7.1.6)

YELLOW SAFETY TAPE - STANDING & WALKING SURFACES

The apparatus shall meet NFPA standard 15.7.1.6 designating any horizontal standing or walking surface higher than 48-in (1220 mm) from the ground and not guarded by railing or structure at least 12-in (300 mm) high shall have at least a 1-in (25 mm) wide safety yellow line delineation that contrasts with the background to mark the outside perimeter of the designated standing or walking surface area, excluding steps and ladders.

One (1)

== Loose Equipment - Tanker - 4212.023 04/21/23 ==

Two (2)
90-62-1100

Suction Hose, Flex, 4"x10'

SUCTION HOSE

Two (2) 4.0" x 10 foot length of flexible suction hose shall be supplied. The suction hose shall have light weight couplings provided.

Two (2)
90-25-6100

Suction Hose Couplings, Aluminum, LH FM x RLM

HOSE COUPLINGS

Light weight aluminum couplings shall be provided on the suction hose. A long handle female swivel shall be provided on one end and a rocker lug male shall be provided for the other end.

One (1)
90-62-2100

Suction Strainer, Barrel Type, 4"

STRAINER

One (1) barrel strainer shall be provided. The strainer shall be constructed from aluminum with chrome finish and include a tie off loop on the end plate. The strainer shall be provided with a 4.0" NST female rocker lug coupling.



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One (1) Folding Water Tank, 2100 Gallon, Steel Frame, 22 Oz Vinyl
90-63-1000

FOLDING PORTABLE WATER TANK

A 2100 gallon, 22 oz vinyl, portable water tank shall be provided. The tank shall include a steel support frame.