

**TOWN OF EAST WINDSOR
BOARD OF SELECTMEN**

SPECIAL MEETING

January 13, 2022

6:00 p.m.

***DUE TO THE INCREASE IN
COVID ACTIVITY THIS MEETING
IS BEING HELD REMOTELY ONLY***
via ZOOM Teleconference

Meeting ID: 332 683 3563

Passcode: townhall

MEETING MINUTES

********Minutes are not official until approved at a subsequent meeting********

Board of Selectmen

Jason E. Bowsza, First Selectman

Marie DeSousa, Deputy First Selectman

Alan Baker, Selectman

Sarah Muska, Selectman

Charles Nordell, Selectman

ATTENDANCE: First Selectman Bowsza hosted the remote meeting. Deputy First Selectman DeSousa, Selectman Baker, Selectman Muska, and Selectman Nordell were present.

ABSENT: All Selectmen were present for this remote meeting this evening.

GUESTS/SPEAKERS signing in to meeting remotely: **Town of East Windsor Broad Brook Fire Department:** Gerald Bancroft, Assistant Chief.

GUESTS signing in to meeting remotely: James Barton, Chief, Warehouse Point Fire Department; Peg Hoffman, Recording Secretary.

1. TIME AND PLACE OF MEETING:

First Selectman Bowsza called the Special Meeting of the East Windsor Board of Selectmen dated January 13, 2022 to Order at 6:01 p.m.

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Pascode: townhall
MEETING MINUTES**

2

2. ATTENDANCE:

First Selectman Bowsza noted Deputy First Selectman DeSousa, Selectman Baker, Selectman Muska, and Selectman Nordell were participating in the meeting remotely.

3. PUBLIC PARTICIPATION:

First Selectman Bowsza queried the remote participants for comments. No one requested to speak.

4. ACCEPTANCE OF THE BID FOR A NEW FIRE TRUCK FOR BROAD BROOK FIRE DEPARTMENT:

First Selectman Bowsza reported the lowest bid was received from Seagraves, the bid amount is \$1,049,658. The bid was received on December 29, 2021; the Town has until January 26, 2022 to act on the bid.

First Selectman Bowsza indicated the charge of the Board this evening is discussion of acceptance of the bid, and forwarding the bid to the Board of Finance.

First Selectman Bowsza opened discussion to the Board.

Selectman Muska questioned that this purchase would be a lease/purchase agreement? BBFD Assistant Chief Bancroft replied affirmatively. Selectman Muska questioned if the \$200,000 currently in the CIP (Capital Improvement Projects) is being used for this purchase? BBFD Assistant Chief Bancroft reported that last year the budget passed with the inclusion of \$200,000 from the CIP Fund, therefore the BBFD has \$200,000 towards the purchase of the truck. The BBFD is proposing a zero-increase budget for this year; another \$200,000 will be available for the vehicle. Before the truck is delivered in 2023 another \$200,000 will have been allocated to the purchase the truck; a total of \$600,000 will be in the CIP Fund. The BBFD does not have to make a payment prior to taking delivery of the truck. Equipment for the truck is anticipated to cost in the range of \$100,000 to \$150,000. The first payment on the truck will be approximately \$450,000. The BBFD discussed 3, 5, and 7 year options; they are leaning towards the 7 year option at \$93,000 as that will help the department start saving for the next truck replacement.

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3

Selectman Muska noted when reviewing the bid document she noticed “Windsor” is misspelled on page 1 of the contract, although she believes the entity should be the Broad Brook Fire Department. BBFD Assistant Chief Bancroft noted representatives from the department will be attending a pre-construction meeting regarding the vehicle, at that time he’ll point out the misspelling.

Deputy First Selectman DeSousa noted the contract was written over a year ago, she questioned that there are no increases in the cost? First Selectman Bowsza clarified that the bid price is good until the end of the month. BBFD Assistant Chief Bancroft concurred, noting there will be a price increase if this contract is not acted on.

Selectman Baker had no comments, other than to note the bid document was extremely lengthy.

First Selectman Bowsza called for other comments; no one raised any additional questions.

First Selectman Bowsza requested a motion to approve the acceptance of the bid submitted by Seagraves, and to forward the contract to the Board of Finance, and if approved to send the request to Town Meeting.

MOTION: To ACCEPT the bid submitted by Seagraves for the purchase of the vehicle and send the Selectmen’s recommendation to the Board of Finance, and, if approved, to send the request to Town Meeting.

Baker moved/Muska seconded/DISCUSSION: Nothing further

**VOTE: In Favor: DeSousa/Baker/Muska/Nordell
(No one opposed/No abstentions)**

First Selectman Bowsza noted there is no other business to be conducted this evening. He called for a motion to adjourn.

5. ADJOURNMENT:

MOTION: To ADJOURN this Meeting at 6:08 p.m.

**Muska moved/Baker seconded/VOTE: In Favor: Unanimous
(No one opposed/No abstentions)**

**TOWN OF EAST WINDSOR
BOARD OF SELECTMEN
Special Meeting – January 13, 2022
REMOTE ACCESS ONLY
ZOOM Teleconference
Meeting ID: 332 683 3563
Pascode: townhall
MEETING MINUTES**

4

Respectfully submitted,

Peg Hoffman, Recording Secretary, East Windsor Planning and Zoning Commission

LEGAL NOTICE

TOWN OF EAST WINDSOR, CONNECTICUT
BROAD BROOK FIRE DEPARTMENT

INVITATION TO BID

Replacement of Engine Tank

December 11, 2021

The Town of East Windsor will receive sealed bids for the replacement of an Engine Tank for the Broad Brook Fire Department until 12:00 noon on Tuesday, December 29, 2021. Bids will be opened at 6:00 p.m. at the Broad Brook Fire Department, 125 Main Street, Broad Brook, Connecticut.

The documents comprising the Invitation to Bid may be obtained at the Office of the First Selectman, Town Hall, 11 Rye Street, Broad Brook, Connecticut 06016. Any questions may be directed to Broad Brook Fire Department at bbfdchiefs@bbfd.org.

The Town of East Windsor/Broad Brook Fire Department reserves the right to amend or terminate this Invitation to Bid, accept all or any part of a bid, reject all bids, waive any informalities or non-material deficiencies in a bid, and award the bid to the bidder that, in the Town's/Fire Department's judgement, will be in the Town's/Fire Department's best interest.



Seagrave Fire Apparatus LLC

Fleetmasters Inc.

Proposal

December 29, 2021

Town of East Windsor

Broad Brook Fire Department

Broad Brook CT 06016

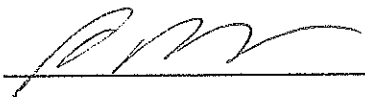
Gentlemen; Seagrave Fire Apparatus through its local dealer Fleetmasters is prepared to deliver to the Broad Brook Fire Department. One (1) Seagrave Marauder 2000 gpm 2500 gallon pumper tanker, proposal specifications attached.

The Final Price for the proposed Pumper Tanker:

1. **Approved price: One Million, Forty-Nine Thousand, Six Hundred Fifty-Eight Dollars (\$1,049,658.00).**
2. Unless this proposal is accepted within 30 days from the date of this quotation, the right is reserved to withdraw this proposition.
3. Delivery **480 calendar days** delivery provided; however, the order is fully specified, accurate and completely defined along with the receipt of the approved Update and PE drawing signed by the customer at time of order.

Sincerely

Gerald Post



12/29/21

Product representative for FWD Seagrave

LIFETIME VALUES – CUSTOMERS FOR LIFE

FWD Seagrave 105 E 12th Street, Clintonville, WI 54929-1518

www.fwdseagrave.com

CONTRACT

THIS AGREEMENT; made by and between **Seagrave Fire Apparatus, LLC** of Clintonville, Wisconsin, hereinafter referred to as the "Seller", and **Broad Brook Fire Department, East Winsor, CT**, by its authorized representative, hereinafter referred to as the "Purchaser".

1. The Seller hereby agrees to furnish **one (1) unit of Seagrave model TE70CT Marauder Pumper-Tanker**, hereinafter referred to as "Apparatus and Equipment", according to the mutually agreed specifications and change order documents hereto attached and made a part of this contract, and to deliver the same as hereinafter provided.
2. The Seller guarantees that all material and workmanship in and about the Apparatus and Equipment shall comply with the mutually agreed specifications and change orders. In the event there is any conflict between the City Bid Specifications and the Seagrave Bid Proposal, the mutually agreed specifications and change orders will prevail. The standard Seagrave Limited Warranty will apply as provided for in the mutually agreed specifications and change orders. Minor details of materials and construction, not otherwise specified, shall be left to the decision of the Seller who shall be solely responsible for the design, engineering and construction of all features of the apparatus. Any changes to the contract or purchase order must be approved in advance through the issuance of a written change order by the Seller. The Seller will not assume responsibility for performing any change requested but not approved by the Purchaser within five (5) days of the change order submission for approval.
3. The Apparatus and Equipment shall be ready for delivery from Clintonville, Wisconsin, within **480** calendar days after the receipt of the (i) mutually agreed specifications, (ii) change order documents and (iii) approval drawing signed by the authorized representative of the Purchaser. The mutually agreed specifications and change order documents and approval drawing shall be delivered to the Purchaser for their signature in not more than 31 days from contract receipt at Seagrave or not more than five days from pre-construction meeting, if so provided. Delays due to change orders, strikes, failures to obtain materials, or other causes beyond Seagrave's control will be just cause for delay in delivery. The completed Apparatus and Equipment shall be delivered to the Purchaser at:

**Broad Brook Fire Department
125 Main Street
East Winsor, CT 06016**

4. A competent representative shall, upon request, be furnished by the Seller to demonstrate said Apparatus and Equipment for the Purchaser and to familiarize the Purchaser's employees in the operation and handling of the Apparatus and Equipment.
5. The Purchaser purchases and agrees to pay for said Apparatus and Equipment, the sum of **One Million, Forty-Nine Thousand, Six Hundred Fifty-Eight Dollars (\$1,049,658.00)**, state, federal, FET, or local taxes not included. Payment of any such taxes are the responsibility of the Purchaser. **Terms are net, payment in full upon delivery of the apparatus to the customer. If the contract includes Dealer Furnished Equipment and services, the apparatus will be delivered to the customer and payment made, less five (5) percent of the Contract Price that is held by the fire department until all items and services are provided by the Dealer. The 5% Final Payment and Acceptance will be made once the terms of the contract are satisfied by the Dealer.**

5.1 All payments shall be made payable to Seagrave Fire Apparatus, LLC and shall be mailed directly to:

Seagrave Fire Apparatus, LLC

*7285 Solutions Center
Chicago, IL 60677-7002*

5.2 The Apparatus and Equipment must be paid in full prior to being placed in fire service.

5.3 If more than one piece of Apparatus and Equipment is covered by this Contract, the above terms of payment shall apply to each piece, and an invoice covering each piece shall be rendered in the proper amount.

6. In the case that no final inspection is made by the Purchaser at the factory prior to shipment and the Purchaser desires to test the Apparatus and Equipment upon receipt, such test shall be made within three (3) days after arrival at the delivery destination specified above. A written report of such test shall be delivered forthwith to the Seller at its principal office at Clintonville, Wisconsin. If no such test be made, or if no such report be made by the Purchaser within three (3) days after arrival, then the Apparatus and Equipment shall be considered as fully complying with the contract specifications.
7. It is agreed that the Apparatus and Equipment covered by this contract shall remain the property of the Seller until the Apparatus and Equipment is delivered and accepted by the Purchaser, such acceptance shall not be unreasonably withheld or delayed. In case of any default in payment the Seller may take full possession of the Apparatus and Equipment, or of the piece or pieces upon which default has been made, and any payments that have been made shall be applied as rent in full for the use of the Apparatus and Equipment up to date of taking possession.
8. In the event that any applicable Federal or State Regulations (DOT, FMVSS, EPA, etc.), National Fire Protection Association Standards or import tariffs which are enacted during the course of this contract, and which requires a change in the contract specifications and purchase price in order for the Apparatus and Equipment to comply with such regulation, the parties will execute a change order describing the change in the specifications and increasing the purchase price by an amount equal to the increase in the costs of producing the Apparatus and Equipment.
9. This Agreement shall be governed by and construed in accordance with the laws of the State of Wisconsin without regard to principles of conflict of laws. Each party hereby consents that the exclusive venue for any dispute of claim relating to this Agreement shall be in the state courts sitting in Waupaca County, Wisconsin. Each party hereby consents to the personal jurisdiction of such courts.
10. Except for damages, claims or losses due to Seagrave's acts of gross negligence, Purchaser or user, to the extent permitted by law, will indemnify and hold Seagrave and Seagrave's property, free and harmless from any liability for losses, claims, injury to or death of any person, including Purchaser or user, or for damage to property arising from Purchaser or user using and possessing the Apparatus and Equipment or from the acts or omissions of any person or persons, including Purchaser or user, using or possessing the Apparatus and Equipment with Purchaser or user's express or implied consent. The provisions hereof shall survive expiration or termination of this Agreement.
11. Risk of loss shall pass to the Purchaser upon delivery and acceptance of the Apparatus and Equipment.
12. To be binding the contract must be signed and approved by an Officer of Seagrave Fire Apparatus, LLC. This contract and mutually agreed specifications and change order documents take precedence over all previous negotiations, and no representations are considered as entering into this contract except as are contained herein or in the mutually agreed specifications and change order documents included herein.

IN WITNESS WHEREOF, the said parties have caused these presents to be executed and the Purchaser has caused its corporate seal to be hereunto affixed, and attested by its authorized representatives, on this _____ day of _____ 20____.

BROAD BROOK FIRE DEPARTMENT, BROAD BROOK CT 06016 ("Purchaser")

By _____
Please print name here

By _____
Please sign name here

Title _____
Purchaser

By _____
Please print name here

By _____
Please sign name here

Title _____
Purchaser

SEAGRAVE FIRE APPARATUS, LLC ("Seller")

By _____
Ulisses D. Parmeziani

Title: **President and Chief Executive Officer**
Seller

Date of Acceptance: _____



Contract "A" - COD Payment

PAYMENT TERMS

Terms are net, payment in full upon delivery and acceptance of the apparatus by the customer. If the Contract includes Dealer Furnished Equipment and services, the payment of 95% of the Contract price is due upon delivery of the apparatus to the dealer, and the remaining 5% of the Contract Price is due upon delivery and acceptance of the apparatus by the customer.

PROPOSAL EXPIRATION

Unless this proposal is accepted within 30 days from the date of the quotation, Seagrave reserves the right to either change the price or any other terms or withdraw this proposal in its entirety.

FEDERAL & STATE REGULATIONS, NFPA STANDARDS & IMPORT TARIFFS

In the event that any applicable Federal or State Regulations (DOT, FMVSS, EPA, etc.), National Fire Protection Association Standards or import tariffs which are enacted during the course of this contract, and which requires a change in the contract specifications and purchase price in order for the Apparatus and Equipment to comply with such regulation, the parties will execute a change order describing the change in the specifications and increasing the purchase price by an amount equal to the increase in the costs of producing the Apparatus and Equipment.

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the design, manufacture and delivery to the purchaser of a complete fire apparatus equipped as specified herein. These specifications include the general requirements of design, material content and construction as well as certain equipment that shall be provided by the contractor. Not all details of the design, material content and construction of the fire apparatus are herein specified. Any such design, material content and construction not specified herein are left to the sole discretion of the seller contractor.

COMPLIANCE WITH NFPA 1901

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

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



STANDARD PLACEMENT OF COMPONENTS

Any deviation from the apparatus manufacturer's standard placement shall incur additional charges.

COMPLETION DATE

Barring any significant change in our current backlog of orders, and delays due to strikes, war or international conflict, failures to obtain materials, or other causes beyond our control not preventing, the apparatus and equipment detailed in the attached specification shall be delivered to you within approximately **Four Hundred Eighty (480) Calendar Days** after receiving the complete order and signed approval drawing. It shall be understood and agreed that changes requested after the order placement and the resulting signed change orders and approval drawings, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

PROPOSAL DRAWINGS

Included with our proposal are line drawings of the apparatus being proposed. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawings show five (5) views of the vehicle: front, rear, both sides and top. The drawings show the wheelbase and overall dimensions of the apparatus, proposed compartment sizes and features, booster tank position and the location of all emergency warning equipment, work lights, seating and other major items that are to be provided on the apparatus.

APPROVAL DRAWINGS

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

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 at placement of the order. Change orders requested after the order placement 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.



PRE-DELIVERY ROAD TRIP AND FINAL FACTORY CHECKLIST

Prior to delivery, the completed apparatus shall be thoroughly inspected by the factory. This inspection shall include a road test of the apparatus. During the factory inspections and road testing, a checklist shall be utilized by factory personnel to document the inspection and road test results. The checklist shall include:

- Documentation of the make, model and serial numbers of all major components such as the engine, transmission, pump, axles, etc.
- Complete, comprehensive operational check of all chassis/drive train components and fluid levels.
- A comprehensive review of the entire exterior and interior of the apparatus for fit and finish, checked against the customer's order specifications, and any ensuing change orders.
- A thorough test of all driving systems under actual highway and city driving conditions.

DELIVERY

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

Delivery shall be to an area located in Zone 5.

FAMILIARIZATION

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

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

The familiarization period shall consist of three (3) sessions over a period of three (3) consecutive days, during the normal work week (Monday - Friday). The schedule of the instruction sessions shall be arranged by mutual agreement of the Fire Department and the delivering authority. The number, length and time of the sessions may vary due to the nature of the apparatus and availability of attendees and must be approved in advance. The balance of any time remaining in a session may be devoted to minor adjustments or corrections to the apparatus for items which may have developed while in transit from the factory.

GENERAL DESIGN REQUIREMENTS

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

Seagrave's deluxe custom cab chassis shall be provided. It incorporates an all steel cab for strength, durability and safety. The cab and body sheet metal shall be constructed of stainless steel, no exception.



All welding personnel that shall be utilized in the fabrication and construction of structural components of the apparatus chassis, body and aerial device shall hold a valid certificate from the AWS - American Welding Society.

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

- American Society for Testing Materials (ASTM) - A-36, Specification for Structural Steel
- Society of Automotive Engineers, Inc. (SAE) - SAE Handbook
- American Welding Society (AWS) - AWS014.4-77 Classification and Application of Welded Joints for Machinery and Equipment
- American Society for Non-Destructive Testing (ASNT)

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

STEPPING SURFACE CERTIFICATION

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

PUMP TEST AND CERTIFICATION

The fire pump shall be third party tested at the apparatus manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests and the manufacturer's record of pump construction details shall be provided with the delivery documentation.

PERFORMANCE REQUIREMENTS AND TEST - NFPA

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

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

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

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



FRAME

The frame is to be specifically designed and produced for the vehicle as specified. Each hole made in the frame rails must be used for a specific chassis component and any holes for non-required options are not acceptable.

The chassis frame shall be built using two variable section steel channels and a minimum of six (6) formed steel cross members. A midship mounted fire pump or pump module shall not be considered as a frame cross member. The frame rails shall be 120,000 psi heat treated steel alloy with tapering measurements and continuous top and bottom flanges. The cross members shall be of heavy duty, fabricated, all-welded design, made out of a minimum of 50,000 psi material.

A "C" straight channel frame inner liner with top and bottom flanges shall be provided. It shall extend from behind the front suspension shackle to the end of the frame rail.

Each rail shall have a combined section modulus of 27.4 and a combined minimum resisting bending moment of 3,254,400 inch pounds.

The frame rails and cross members shall be assembled using 5/8" flange head, grade eight bolts and "Spiralock®" flange nuts. Spiralock® nuts shall be used exclusively in the frame assembly for mounting spring hangers, steering gear, engine, transmission, etc. to maintain constant torque tension and prevent loosening from vibration. Spiralock® nuts shall provide even thread load over the bolt, increased fatigue strength and clamping torque.

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

BUMPER

A heavy duty, 10" high, ribbed, highly polished stainless steel bumper shall be mounted to the front of the chassis. The bumper shall be a "ribbed" cross section shape with 2" flanges and rounded corners.

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

18" BUMPER EXTENSION

A bumper extension shall be installed at the front of the cab. The front of the bumper shall be approximately 18" from the front face of the cab. A gravel pan made of 3/16" aluminum tread plate shall be installed between the front bumper and the cab. The bumper extension shall be designed and constructed so that the apparatus can be pulled by the extension.



FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be attached to the top of the gravel pan. The sign reads: "Fall Hazard-Railings NOT provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill".

FRONT TOW EYES

Two (2) painted "cut plate elongated-style" type tow eyes shall be furnished. They shall be installed under the aluminum tread plate "gravel" pan, behind bumper. The eyes shall be fabricated of 1" thick steel plate with a 3" diameter opening. They shall be painted to match the frame/undercarriage.

REAR TOW LOOPS

Two (2) painted rear tow loops shall be provided, welded to the underside of the rear step subframe. The loops shall be rated at 9000 pounds straight pull. They shall be painted to match the frame/undercarriage.

STEERING

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

AUXILIARY CYLINDER FOR POWER STEERING

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

CHASSIS ALIGNMENT

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

AIR PIPING

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



AIR DRYER

A Meritor WABCO 1200 System Saver air dryer shall be installed in the air brake system. It shall have a minimum capacity of 30 cfm air flow. Dryer shall be equipped with an integral, automatic, 12 volt heated moisture ejector which is thermostatically controlled. System shall include a pressure controlled check valve installed between the wet tank and the secondary air reservoir.

AUXILIARY AIR INLET

There shall be an auxiliary air inlet installed on the front of the driver's side step well to maintain the chassis air pressure while the engine is not running. A check valve shall be installed in the line to prevent outflow of air pressure from the "wet" or "supply" tank.

FRONT AXLE

A Dana D2200 front axle with a 22,800 pound rating shall be provided. It shall include composite low-friction bushings with diagonal grooves to better distribute lube, camber settings of +1/4 degree for both left and right sides to help improve tire life and a large diameter, heat treated kingpin with a lube retaining seal.

DISC BRAKES

The front axle shall be provided with Bendix #ADB22X air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The #ADB22X air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical ratio. A visual indicator of brake wear shall also be provided.

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

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

SHOCK ABSORBERS

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

AUXILIARY AIR APPLIED FRONT AXLE PARKING BRAKE

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



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

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

VEHICLE STABILITY COMPLIANCE – ELECTRONIC CONTROL

In compliance with NFPA 1901, current edition standard 4.13.1, the vehicle, as specified, shall be equipped with a Meritor-WABCO electronic Roll Stability Control system that shall utilize a centrally mounted pitch and yaw sensor and steering shaft position sensor interacting with the chassis' ABS traction control, auxiliary braking system and the engine ECM to minimize the vehicle's potential for rollover in a turning at speed maneuver.

AUTOMATIC TRACTION CONTROL WITH DEEP SNOW AND MUD SWITCH

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

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

SKF LUBRICATION SYSTEM

The SKF automatic lubrication system shall provide automatic grease applications on the unit, with the recommended dosages, per system interval cycle.

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

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

The auto lube system shall be operated via an electronic control module with System Monitoring capabilities of the main line and operating cycle with dash mounted visual indication to the vehicle operator. The control module shall have LED's and a system reset button to initiate a lube cycle for diagnostic purposes and/or reset the control module in the event a system fault has occurred. Upon a fault, the system is inoperable until the fault has been corrected and a system reset has been initiated by the operator or serviceman.

On the front axle, the following items shall be lubricated, as standard: drag link, tie rod, spring and shackle pins and the steering assist cylinder. The following items shall also be lubricated, if present: s-cam brakes and slack adjusters.



FRONT TIRES

The two (2) front tires shall be Goodyear 425/65R22.5 G296 MSA, load range "L" with on-off highway tread. This tire has a nominal rating of 11,400 pounds at a top speed of 68 mph and an intermittent fire service rating of 12,200 pounds at a top speed of 68 mph.

REAR TIRES

The eight (8) rear tires shall be Goodyear 12R22.5 G622 RSD, load range "H". This tire has a nominal rating of 6,780 pounds with a top speed of 75 mph and an intermittent fire service rating of 7,255 pounds at a top speed of 75 mph.

WHEELS

Wheels shall be Alcoa aluminum disc type and hub piloted. The wheels shall be coated with Durabrite. Chrome plated nut covers shall be furnished.

FRONT AXLE "BABY MOON" HUB CAPS

Stainless steel "Baby Moon" type hub caps shall be provided on the front axle. The hub caps shall be cut out for viewing of the front axle oil seals.

REAR AXLE "HIGH HAT" HUB CAPS

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

TIRE PRESSURE INDICATORS

Tires shall have non-pressure indicators installed for shipment.

Accu-Pressure Heavy Duty Safety Caps shall be provided and shipped loose. This valve stem inflation pressure sensitive monitor shall provide a visual color indication of when the tire pressure is below the manufacturers recommended level. The chrome safety cap shall show green when the tire is properly inflated and red once the tire becomes under inflated.

All inner wheels shall be equipped with a valve stem extension that shall allow the inner wheel to be filled without removing the outer wheel.

TIRE BALANCE

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



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

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

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

ENGINE COOLING CERTIFICATION

"EPQ" (End Product Questionnaire) certification shall be provided by the chassis manufacturer. Certification shall be documented with reference to each specific chassis model by the chassis manufacturer.

FAN CLUTCH

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

COOLANT OVERFLOW RESERVOIR

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

SILICONE HOSES

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

SKID PLATE

A radiator skid plate shall be provided to protect the radiator from debris. The skid plate shall cover the lower radiator tank and shall be painted to match the frame rails.



TOUCH PAD TRANSMISSION SHIFT CONTROL

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

DRIVELINE

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

FUEL SYSTEM

The vehicle shall be furnished with a 65 gallon fuel tank mounted behind the rear axle and just below the frame rails using a stainless steel strap. The tank shall be constructed of stainless steel and equipped with a swash partition and vent. The fuel tank shall meet all FHWA requirements including a fill capacity of 95% of tank volume and all DOT and FMVSS regulations for rollover protection. A 2" diameter fill inlet shall be provided. Fuel cap shall be of brass or bronze construction, non-vented and have lead safety fuses. It shall be chained to inlet tube or to the body sheet metal to prevent loss. Braided hoses shall be provided for the fuel lines. A 1/2" NPT drain plug shall be located at the bottom of the tank. The tank shall be installed using stainless steel straps and hardware, separated from the tank by a rubber insulating strip to prevent against chaffing. On trucks without torque boxes, the fuel tank pickup tube and sending unit shall be accessible without having to remove the tank.

The stainless steel fuel fill inlet shall be located on the Right (Officers) side of the apparatus. It shall be concealed behind a door. The inside of the door shall be marked "ULTRA LOW SULFUR DIESEL FUEL ONLY". The fuel inlet area, recessed behind the door, shall be completely enclosed to prevent dirt and debris from entering. Provision shall be provided inside the fill recess for drainage of any spilled fuel within the cavity.

The fuel door shall be constructed of stainless steel and shall have a brushed finish. It shall be hinged along the vertical side towards the front. A magnet shall hold the door in the closed position. The door shall be kinked along 3 edges with the fourth side being used as a finger grab for opening and closing it. A stainless steel trim ring shall encircle the opening to prevent the fuel nozzle from damaging the surrounding surface when it is opened. The fuel shelf shall be made from a high impact polyethylene material.

ENGINE FUEL COOLER

An engine fuel cooler shall be provided on the apparatus. The engine fuel cooler shall cool the returning fuel from the engine using the water from the water pump.



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

There shall also be an inhibit switch placed near the driver to inhibit an automatic reurn.

DEF

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

DEF ACCESS

The DEF shall be filled via a vertically hinged aluminum tread plate door with a 1/4 turn latch. The door shall be located over the intermediate step in the driver's side crew cab step area.

A viewing slot shall be provided in the vertical surface of the left crew cab step riser below the intermediate step. The slot shall be marked with a black line to indicate the maximum DEF fill level.



EXHAUST HEAT SHIELDS

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

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

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



- Foam system lubricant, if applicable
- Generator system lubricant, if applicable
- Aerial Hydraulic Fluid, if applicable
- Front tire size and cold pressure
- Inter tire size and cold pressure, if applicable
- Rear tire size and cold pressure
- Trailer tire size and cold pressure, if applicable
- Maximum tire speed ratings
- Ambient operating temperature
- Paint colors and codes

A layer of Velvet Polycarbonate shall overlay the lettering to protect it. The lubrication nameplate shall be installed on the interior face of the driver's door, near the hinge and below the window controls.

STAINLESS STEEL FULL TILTING MARAUDER CAB

The cab shall be designed specifically for the fire service and shall provide roll cage strength and safety. The stainless steel cab shall be made in the factory of the bidder and must utilize the bidder's top-of-the-line technology and manufacturing techniques. The entire cab shall tilt forward 45 degrees for engine access. No plastic, fiberglass, or aluminum shall be used in the construction of the cab sub-frame, floor assembly, front assembly, side assemblies, back wall assemblies or roof assembly.

CAB DIMENSIONS

The back wall of the 141" cab shall measure 72" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96".

CAB MOUNTING

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

CUSTOM CAB DESIGN AND CONSTRUCTION

SUB-FRAME

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



ATP OVERLAY ON BACK OF CAB

An aluminum tread plate overlay shall be provided on the exterior rear wall of the cab. Strips of aluminum tread plate shall cover the full height of the rear wall of the cab, and shall run from the outside edge of each side of the cab, in towards the center approximately one-quarter of the width of the cab. If an optional window is provided on the rear wall of the cab, it shall be fully surrounded by the aluminum tread plate.

CAB GRILLE - VERTICAL BARS AND RAISED BEZEL SURROUND

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

UPPER RAISED BEZEL SURROUNDS, WITH PANELS

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

ENGINE AIR INTAKE GRILLE WITH WATER/EMBER SEPARATOR

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

16" RAISED ROOF

The rear section of the cab roof, over the crew cab area, shall be raised 16" higher than the driver's and officer's section. The raised portion shall start just behind the centerline of the front axle. The leading forward face of the raised roof shall slope backward 45 degrees to provide a streamlined look.

The interior floor to ceiling height of the forward portion of the cab shall be 57". The interior floor to ceiling height of the rear crew portion of the cab shall be 73".

The rear crew cab doors shall be extended into the raised portion to provide maximum headroom for entering and exiting the rear crew cab. The top of the rear crew doors shall increase by 14" and have an additional piece of fixed glass at the top of the door, above and separate from the standard door glass.

PAINTED CAB ROOF

The exterior surface of the cab roof shall be painted in compliance with the cab paint specifications detailed elsewhere in this specification document.



AUXILIARY ENTRANCE STEPS

Auxiliary cab entrance steps shall be provided at each cab door opening, below the cab, to reduce the cab entrance step height by approximately 9.5 inches.

FRONT INTERMEDIATE CAB STEPS

Two (2) stationary steps shall be provided, one at each front cab door. The steps shall be approximately 12.0" long, have a 9.0" radius, and be located to the front of each cab step well. The steps shall be constructed of aluminum grating.

REAR CREW INTERMEDIATE CAB STEPS

Two (2) stationary steps shall be provided, one at each rear crew cab door. The steps shall be approximately 12.0" long, have a 9.0" radius, and be located to the front of each cab step well. The steps shall be constructed of aluminum grating.

CAB SIDE ACCESS DOOR

Two (2) stainless steel cab side access doors shall be provided on the cab, one each side between the front doors and front crew cab windows. Door openings shall be approximately 13.00" wide x 37.00" high. The doors shall open a minimum of 90 degrees.

The cab side access doors shall be vertically hinged at the front edge.

The doors shall each have a chain style door stay.

The "D" handle type latches shall be provided on the lower part of the door.

KEYED LOCKS

There shall be keyed locks for both the cab side access doors. The driver's side and officer's side access doors shall be keyed alike with #1250 keys.

CAB SIDE ACCESS DOOR SILL PROTECTORS

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



VENTS

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

FRONT GRILLE SCRIPT NAMEPLATE

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

FRONT STAINLESS STEEL INNER LINERS

Semi-circular inner liners shall be provided in each front wheel housing. They shall be constructed of 304 stainless steel and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The outside edge of the inner liner shall be bolted along its entire length. The bottom edge of liner shall not have a formed reinforcement flange to avoid trapping dirt and debris.

FRONT FENDERETTE

Polished stainless steel fenderettes shall be installed in the front wheel openings. They shall be sufficiently wide to completely cover the front tire and reduce wheel splash along the sides of the cab. They shall be installed with 1/4" hex head bolts (self-tapping sheet metal screws are not acceptable) and have a full width rubber welt placed between the fenderette and body wheel well opening flange.



WINDSHIELD WIPERS AND WASHERS

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

WINDSHIELD WASHER RESERVOIR

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

DOOR WINDOWS

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

Electric power window regulator shall be manufactured by the Muncy Corporation and shall be the enclosed, sliding flexible shaft, gear type for ease of operation and reliability. The shaft shall enter a vinyl plastic protective sheath whenever it is exposed. A 12 volt electric motor with gear reduction box to slow driven gear rpm and increase power transmission shall be provided.

DRIVER'S DOOR GLASS SWITCH

An individual switch for the driver's electric door window shall be provided on the driver's dash, wired to the ignition.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

OFFICER'S DOOR GLASS SWITCH

An individual switch for the officer's electric door window shall be provided on the officer's dash, wired to the ignition.

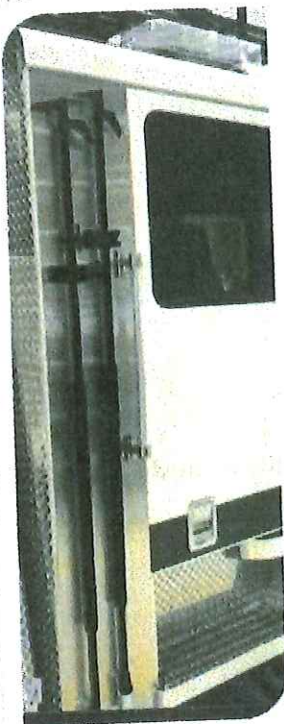
Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.



CAB SIDE PIKE POLE MOUNT

Four (4) pike pole mounts shall be installed on the side of the cab to the rear of the crew doors. The mounts shall consist of a metal cup mount on the bottom, with a vertical orientation brushed stainless steel scuff plate to hold the handle, and a PAC TRAC 1004 holder with a black handle, to secure the handle, mounted approximately 48" from the bottom of the cab upward, and T-handle shall go from back to front on the apparatus. A vertical orientation brushed Stainless Steel scuff plate shall be provided where the hook head may contact the cab side. The mount shall be designed to hold a 6' NY Roof Hook with a steel handle.

*****Picture is for placement concept only--full height suffplate not included**



The pike pole mount shall be located on both sides of the cab.



FRONT OF CAB HANDRAILS

Two (2) 8" knurled stainless steel handrails shall be provided and installed horizontally on the front of the cab, one each side below the windshields.

The backlit handrail LEDs shall be blue in color.

MARAUDER CRASH TEST

The cab shall be certified for the following tests:

- SAE J2420: Cab Over Engine (COE) Front Strength Evaluation - Dynamic Loading - Heavy Trucks
- SAE J2422: Cab Roof Strength Evaluation - Quasi Static Loading - Heavy Trucks
- ECE Regulation 29: Protection of Occupants of Cab in Commercial Vehicle

Performance Measure:

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

HELMET HOLDER - BODY

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

NFPA 14.1.8.4.1 A location for helmet storage shall be provided.

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

CAUTION LABELS

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



A removable cover over the engine enclosure and insulation shall be coated with dark gray LINE-X® to act as an insulator for sound and engine temperature, as well as to provide an easy-to-clean work surface.

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

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

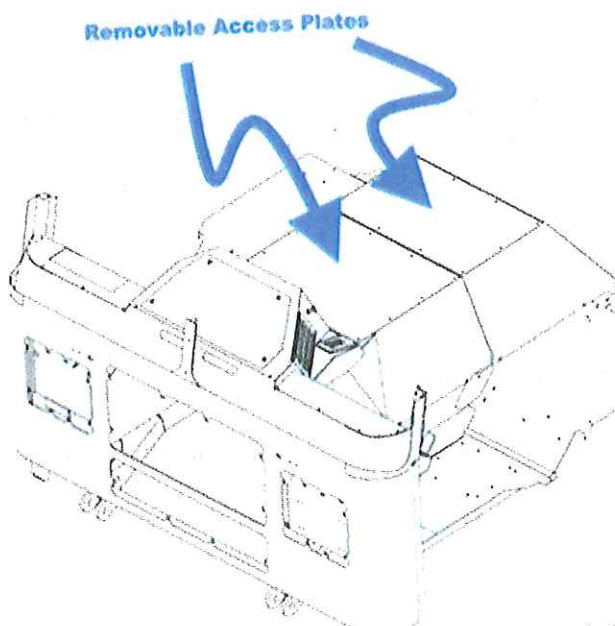
ACCESSORY MOUNTING STRUCTURE

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

ENGINE COMPARTMENT ACCESS DOOR

An access door shall be provided at the rear of the engine enclosure for routine engine fluid checks. The access door shall be insulated from engine heat with aluminized foil/foam/barrier composite and sealed to prevent exhaust fumes from entering the crew cab. The engine access door shall measure approximately 27.5" wide x 11.25" high.

REMOVABLE PANELS - TUNNEL



A set of access panels with a LINE-X® coating to match the engine tunnel shell shall be installed on top of the engine tunnel shell. They shall only provide access into the area beneath the shell and not into the actual engine tunnel. They shall be approximately the full width of the tunnel and shall be provided on each side of the horizontal split.



ENTIRE CAB FLOOR

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

FORWARD CAB FLOOR

Aluminum tread plate flooring shall be installed over the insulated forward cab floor matting. The aluminum tread plate shall be 1/8" thick. Flooring shall be removable in sections and may be notched around floor mounted components.

CREW CAB FLOOR

Aluminum tread plate flooring shall be installed over the insulated crew cab floor matting. The aluminum tread plate shall be 1/8" thick. Flooring shall be removable in sections and may be notched around floor mounted components.

SUN VISORS

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

CUP HOLDER

Five (5) cup holder(s) with a dark gray LINE-X® coating shall be installed in the cab. The cup holder shall be designed for mounting on top of the engine tunnel.

The cup holder shall be shipped loose.

VEHICLE DIMENSION SIGN

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

CAB DOOR PANELS

The lower inside bolt-on panel of each cab door shall be covered with brushed stainless steel to serve as a door kick plate.



CABLE RACEWAY

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

The cable raceway shall be opened underneath the officer seat to assist in the installation of radio or additional equipment.

A pull wire shall be provided within the cable raceway to assist in the installation of radio or additional equipment.

REAR SEATING

The rear crew cab section shall contain one (1) center forward facing H.O. Bostrom 400CT SCBA flip-up passenger seat. The seat shall be installed on the rear wall of the cab directly behind the engine enclosure. The seating area shall allow maximum room for fire fighters in full turn out gear.

REAR SEATING

The rear crew cab section shall contain two (2) outboard forward facing H.O. Bostrom 400CT SCBA flip-up passenger seats. The seats shall be installed on the rear wall of the cab. The seating area shall allow maximum room for fire fighters in full turn out gear.

SEAT BELT

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

SEAT BELT

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

SEAT BELTS

The one (1) inboard, forward facing seat(s) shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.

An IMMI ReadyReach shall be attached to each of the inboard forward facing seat belts. The ReadyReach positions the seat belt forward making the seat belt easier to reach.



HEATER/DEFROSTER-FORWARD CAB

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

CONDENSER COVER

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

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

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

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

MANUAL COOLANT SHUTOFF VALVE - INLET

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

MANUAL COOLANT SHUTOFF VALVE - RETURN

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

REAR CREW CAB HEATERS

Two (2) rear crew cab heaters with a combined rating of 64,000 BTU output and 850 CFM air flow shall be provided. The rear cab heaters shall be mounted under the rear facing outboard seats each side. The units shall have a variable speed blower, and a removable, replaceable filter. The driver side rear facing heater shall have control of the thermostat and the on/off control.



MAP BOX

A map box shall be provided and installed between the driver and officer on top of the engine hood. The box shall have four (4) angled vertical slots space on 2.75 inch centers. The rear interior of the slots shall be 14.25 inches wide by 8.00 inches deep and shall run crossways of the cab. The front two (2) slots shall be 4.00 inches deep.

The box shall be constructed of a 0.125 inch thick aluminum sheet metal welded assembly. It shall be covered with black LINE-X®.

The location of the map box shall be determined at the Final Inspection.

COMPARTMENT LIGHTS - LED

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

ROOF HOOK(s)

Four (4) 6 ft. Fire Hooks "NY" fire hook(s) model RH-6 with handle(s) shall be provided.

FINISH – CAB COMPARTMENT INTERIOR(S)

One (1) cab compartment interior(s) shall have no finish applied.

If a hinged door is provided, the door interior shall match the compartment interior.

WARRANTY

Dana Corporation provides a five (5) year parts and labor warranty on the front axle. See warranty certificate for complete details.

WARRANTY

Bendix Spicer Foundation Brake LLC warrants to the original retail purchaser that all air disc brake products shall be free from defects in materials or workmanship for five (5) years, 500,000 miles for on-highway applications, and one (1) year unlimited miles for off-highway applications provided Bendix brake pads, rotors, and brake chambers are used. See warranty certificate for complete details.



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

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

CIRCUIT IDENTIFICATION

All wiring shall be uniquely identified by a circuit number and color coding. The identification shall be referenced on a wiring diagram. Wires less than 8 AWG shall be permanently identified at least every 2.0 inches (50.8 mm) by a circuit and function code.

WIRING CONNECTIONS

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

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

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

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

WIRE AND CABLE ROUTING

Wiring routed through holes in sheet metal or castings shall have edges protected by an appropriately sized grommet.

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

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

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

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



CORROSION PROTECTION

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

MAIN BATTERY AND STARTER CIRCUITS

BATTERY POWER BUSS

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

ENGINE STARTER AND INTERLOCK CIRCUITS

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

BATTERY GROUND BUSS AND SINGLE POINT GROUND SYSTEM

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

APPARATUS GROUND BONDING

The battery negative buss bar shall be connected to the chassis frame. The cab, pump enclosure (if furnished), and body structure shall be electrically bonded to the vehicle frame with braided copper grounding straps.

EMI/RFI PROTECTION

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

EMI/RFI EMISSIONS

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



Satellite Gauges

- | | |
|-----------------------------|---|
| • 2" Fuel Level: | Empty – full with low level warning indicator |
| • 2" Voltmeter: | 10-18 VDC |
| • 2" Coolant Temperature: | 100-280 Degrees Fahrenheit |
| • 2" Engine Oil Pressure: | 0-100 psi |
| • 2" Transmission Oil Temp: | 100-320 Degrees Fahrenheit |
| • 2" Front Air Pressure: | 0-150 psi |
| • 2" Rear Air Pressure: | 0-150 psi |
| • 2" DEF Level: | Empty – full with low level warning indicator |

AUDIBLE CAB ALARMS

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

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

- Active Hazard Warning – (Do Not Move Apparatus; Door Open, Tower Raised, Ladder Rack Down, etc.)
- Seat Belt Warning (A separate and different tone than that for the Active Hazard Warning)

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

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

DRIVER'S AND OFFICER'S CONTROLS

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

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

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



- Right Turn signal green indicator light

Within the display shall be four (4) separate pages defined as noted:

- Page 1 Digital Speedometer
- Page 2 Digital Tachometer
- Page 3 & 4 shall show additional engine information

EMERGENCY & WORK LIGHT SWITCH PANELS - DRIVER'S & OFFICER'S SIDES

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

A master warning light switch, red in color, shall be provided for emergency lighting.

A momentary clear warning light switch shall be provided for clear emergency lighting control that shall default on.

Work lights are defined as ground, step, rear pick up, hose bed or dunnage area, if on the apparatus and specified.

DOOR AJAR/HAZARD INDICATOR LIGHT (DO NOT MOVE APPARATUS)

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

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

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

DIGITAL CLOCK

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



The display shall be dimmable with a Rheostat control on the dash and shall have an override button on the control to dim to ten (10) percent.

APPARATUS STATUS INDICATORS AND AUDIBLE ALARMS

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

WARNING INDICATOR

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

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

NOT STOWED INDICATOR

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

- AERIAL RAISED
- DECK GUN RAISED
- JACKS EXTENDED

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

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



system voltage, individual electrical loads shall be automatically and sequentially deactivated until voltage returns to an acceptable level. Loads shall be sequentially reactivated to avoid a sudden large voltage demand on the system. Electrical loads defined in NFPA 1901 as "minimum continuous" shall not be subject to automatic load management. Load prioritization shall be independently field programmable by authorized users.

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

LOAD SEQUENCER

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

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

VEHICLE DATA RECORDER AND SEAT MONITOR DISPLAY

Fire Research series SBA200-A00 seat monitor display and vehicle data recorder kit shall be installed. The kit shall include a seat monitor display module, a vehicle data recorder, and cables.

The seat monitor display shall be programmable for up to twelve (12) seats and have a seatbelt icon for each. A message display, push buttons for navigating through programs, and vehicle system warning indicators shall be located on the front of the seat monitor display.

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

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

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status



POWER STUDS (OVERHEAD SWITCH PANEL)

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

POWER STUDS (CAB DASH)

Four (4) studs shall be provided in the cab dash area to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

BUSS BAR (UNDER OFFICER'S SEAT)

A four (4) stud 30 Amp buss bar with protective cover shall be provided under the officer's seat to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

BUSS BAR (UNDER ENGINE TUNNEL)

One (1) four (4) stud 30 Amp buss bar(s) shall be provided under the rear engine tunnel panel to provide a 12 volt feed. The studs shall consist of two (2) 12 volt direct studs, switched battery stud, and grounding stud.

DRIVER'S SIDE &/OR REAR BODY 12-VOLT POWER DISTRIBUTION

The power distribution for the driver's side and/or rear body compartments shall be managed through a 50 amp manual resetting circuit breaker located behind an accessible service panel in the forward bulkhead of the driver's side front compartment of the body. The 50 amp circuit breaker shall be wired direct into the batteries.

3-STUD BUSS BAR

One (1) 3-stud buss bar, 20 amp maximum, shall be located behind an accessible service panel in the forward bulkhead of the driver's side front compartment of the body, to provide a 12-volt feed. Each buss bar shall consist of a 12-volt direct stud, a 12-volt switched battery stud, and a grounding stud. Each of the power studs shall be protected by a 20-amp circuit breaker, located in the same place. The 20 amp maximum circuit breaker shall be connected to the 50 amp manual resetting circuit breaker also located there.

2-STUD BUSS BAR

One (1) 2-Stud 20 Amp maximum buss bar(s) shall be provided in the upper forward corner of the driver's side body compartment(s) and/or back wall driver's side of the rear body compartment, as specified, to provide a 12 volt feed. Each buss bar shall consist of a 12 volt direct stud and grounding stud. If additional options, such as peg board or Pac Trac are mounted in the compartment, the buss bar(s) may be mounted to the pegboard or Pac Trac. In either case, a cover, painted to match the body interior color, shall be provided that is open from the bottom.



12 VOLT PLUG(S) AND RECEPTACLE(S)

One (1) 12 volt power plug receptacle(s) and cover(s) shall be provided and shall be wired battery direct, with a fused circuit. The plug and receptacle are made from corrosion resistant marine grade materials. The plug locks into the receptacle providing a positive moisture proof connection.

Location of the 12V Power Point(s) shall be: in outlet box aft of officer's seat on side of engine tunnel

OUTLET BOX

A fabricated 0.090" aluminum enclosed box that follows the contour of the engine tunnel shall be provided aft of the officer's seat on the side of the engine tunnel. It shall be covered with dark gray LINE-X® to match the color of the engine tunnel. This outlet box shall be capable of holding one (1) 12 volt power point, one (1) USB charger port and one (1) 120 volt receptacle. (The power point, USB charger port and receptacle are not included in this cost.)

USB CHARGER PORT

Two (2) Kussmaul Electronics model 091-219-5 USB 2.4/2.4 Amp Dual Charger Ports shall be wired battery direct with a fused circuit and shall be located on the dash as follows:

Location of USB charger port shall be: ____

USB CHARGER PORT

One (1) Kussmaul Electronics model 091-219-5 USB 2.4/2.4 Amp Dual Charger Ports shall be wired battery direct with a fused circuit and shall be located on the dash as follows:

Location of USB charger port shall be: in outlet box aft of officer's seat on side of engine tunnel

TWO-WAY RADIO ANTENNA MOUNT(S)

Two (2) universal antenna mount(s), model MATM, with 17 feet of coax cable and weatherproof cap shall be provided for the two-way radio equipment.

No Installation for Customer Furnished Antenna Required

The antenna lead shall terminate in the officer's seat riser. Any excess cable shall be secured in an accessible location.

The antenna location shall be installed in the cab roof, behind the light bar.



MONITOR

One (1) Rosco model STSM251 7" LCD Color monitor with audio shall be installed in the cab and connected to the digital video recorder.

QUAD VIEW SPLITTER

One (1) Rosco model STSS1000A quad view splitter shall be installed on the monitor. A remote control shall be included to switch the monitor views from single to split, tri and quad views.

WIFI CAPABILITY

Hardware to provide WIFI capability to the digital video recording system shall be installed and shall include one (1) 11 AC WIFI Module, model DV406 and one (1) patch antenna, model DV407.

Customer shall provide own access point(s) and internet connection.

No 4G Cellular Capability Required

BATTERIES

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

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

JUMPER CABLE STUDS

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

BATTERY AND ELECTRICAL COMPONENT STORAGE AREAS

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

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

The whole battery box (interior and exterior) where the batteries are installed shall be coated with black LINE-X®.



BATTERY CHARGER/AIR COMPRESSOR COVER

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

AUTO EJECT PLUG

A Kussmaul 30 Amp, 120 VAC "Super Auto Eject" shoreline power connector shall be provided for the battery charger behind the driver's door on the cab side. The shoreline power connector shall be provided with a spring loaded cover to prevent water from entering when the shoreline is not connected. A label shall be permanently affixed at the power inlet that indicates the line voltage in volts and the current rating in amps.

The Super Auto Eject Cover shall be yellow.

HEADLIGHTS

Front headlights shall be mounted on the front cab face to the left and right of the engine cooling intake grille. The headlights shall be quad type, rectangular Truck-Lite model 27640C/27645C 12-volt LED with bright finished trim rings and chrome bezels. The low beam headlights shall be located at the outer position.

The headlights shall be in the middle position.

ALTERNATING FLASHING HEADLIGHTS

The chassis high beam headlights shall flash alternately.

The alternating, flashing headlights shall be wired to the clear warning lights on/off switch.

FRONT DIRECTIONAL DUAL LIGHT BEZEL

The front directional lights shall be mounted in a chrome plated dual light bezel located on each side of the cab front face. The dual light bezel shall match the headlight housing.

The front directional light bezels shall be in the uppermost position.



D.O.T. REFLECTORS

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

CAB SIDE DIRECTIONAL LIGHTS

Side directional lights shall be provided in addition to the front turn signals. They shall be Weldon model 9186-8580-29, LED "bug eye" type. One (1) light shall be mounted just above the front fender on each side of the cab. Lights shall have an amber polycarbonate lens and highly polished stainless steel mounting flange or bezel.

CORNERING LIGHTS

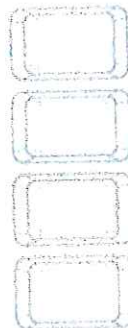
Two (2) Whelen 500 series 50C03ZCR super LED white "steady burn" cornering lights with 5TSMAC chrome flanges shall be mounted, one (1) on each side of the cab on the cab cowl, approximately in line with the lower light position on the cab front, at an approximate 45 degrees. The lights shall activate and deactivate with the directional lights.

BRAKE/TURN/BACKUP/WARNING LIGHTS CONFIGURATION

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

The order of lights shall be as follows:

Top: Brake
Second from top: Signal
Third from top: Reverse
Bottom: Warning





GROUND LIGHTS ILLUMINATE IN REVERSE

All the ground lights on the body shall illuminate any time the chassis transmission is placed in reverse.

GROUND LIGHTS

Two (2) weatherproof TecNiq #E10 LED ground lights shall be provided in each front bumper corner, at 45 degrees.

GROUND LIGHTS

Four (4) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the cab, per NFPA requirements.

GROUND LIGHTS

Two (2) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the body rear step, per NFPA requirements.

GROUND LIGHTS

Two (2) weatherproof TecNiq E10 LED ground lights shall be provided underneath the pump enclosure, one each side, per NFPA requirements.

ENGINE COMPARTMENT WORK LIGHT

One (1) TecNiq E10 LED engine compartment work light shall be provided and wired to illuminate automatically when the cab is tilted. The light shall also be wired through the engine compartment access door switch, providing illumination of fluid dip sticks and coolant overflow reservoir.

PUMP MODULE WORK LIGHTS

Two (2) TecNiq E18-WCS0-1 LED lights shall be installed, one (1) on the left side behind the master gauge panel and one (1) on the right side behind the hinged panel. Each light shall have a switch on it.

PUMP MODULE OPEN BIN WORK LIGHT(S)

One (1) TecNiq E10 LED light(s) shall be installed inside the open bin to illuminate the work area. The light(s) shall be mounted on the back wall of the open bin, high up in an area clear of open bin components such as a generator or reel. The light shall be switched with the pump panel lights.

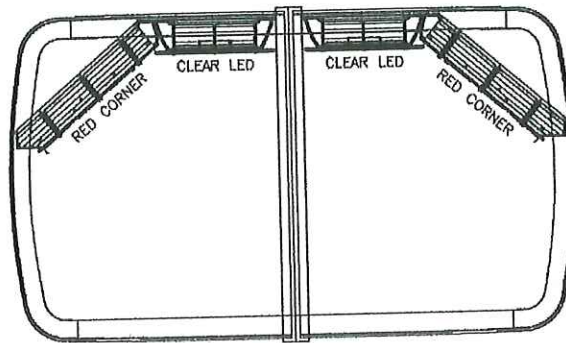
PARKING LIGHTS

Two (2) TecNiq #E61 LED, side mounted, surface mounted, parking lights shall be provided. The lights shall have a stainless steel cover. They shall be installed one each side of body in the rear wheel well area. Light mounting fixture shall be designed so that light is angled to shine out to the rear and down towards the ground. They shall be switched on from the driver's position in the cab.



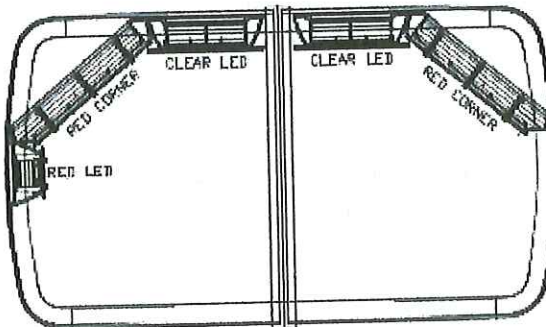
The forward facing lightbar shall consist of two (2) Linear-LED® heads with two (2) clear LED located in the center forward facing. The forward facing lightbar shall also be equipped with two (2) red corner Linear-LED® lights in the front corners.

Each angled lightbar shall consist of two (2) Linear-LED® heads with two (2) clear LED located in the center forward facing and one (1) red LED to the outside facing the side. The angles lightbars shall also be equipped with two (2) red corner Linear-LED® lights in the front corners.

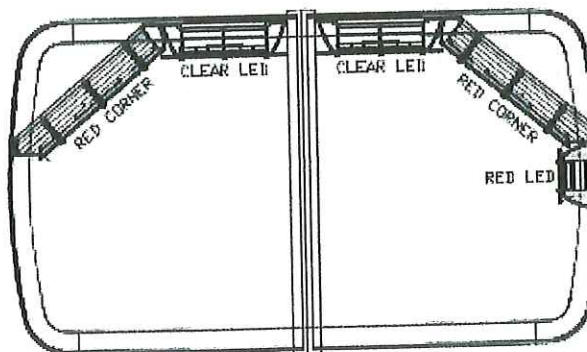


Center:

Left Side:



Right Side:





Location of each perimeter warning light shall be:

Zone A Upper:

- (3) Front light bars

Zone A lower:

- (2) #600 Red lights inboard of turn signals
- (2) #500 Red lights on cab cowl
- (2) #500 Clear lights on cab cowl

Zone B/D lower:

- (2) #600 Red lights on side of bumper
- (2) #600 Red lights on side of cab, to rear of axle center, near crew door hinge
- (2) #600 Red lights on body fender forward of axles
- (2) #600 Red lights on body fender rearward of axles

Zone C upper:

- (2) Rear beacons
- (2) #M9 Amber lights rear face of body just beneath catwalks

Zone C lower:

- (2) #600 Red lights below the backup lights

TRAFFIC ADVISOR™

A Whelen TAM85 500 series TIR6™ Super-LED® Traffic Advisor™ shall be provided. The light bar shall be 46.82" wide and consist of eight (8) Super-LED® lamp modules mounted in a low profile flat style housing. All outer lenses shall be amber colored. The light shall be controlled by a TACTL5 control head mounted in the cab.

The control head for the traffic arrow shall be recess mounted in the lower dash.

The Traffic Advisor™ shall be wired through the Emergency Master.

The traffic advisor shall be recessed in the upper portion of the rear face of the body. The recess for the light shall be constructed of mill finish aluminum.

WARNING LIGHT FLASHER(S)

One (1) flasher(s) shall be provided to coordinate the flash pattern of the LED warning lights.

The lens color shall be clear.



AIR HORN DUAL LANYARD

The air horn(s) shall be activated by one (1) lanyard pull cord for the driver and by one (1) lanyard pull cord for the officer which shall both begin at a switch centered on the vertical face of the overhead dash panel and shall end at the rear of the center overhead, one on the driver's side, one on the officer's side. The lanyard pull cords shall be composed of a chain encased in a plastic tube.



AIR SHUT OFF VALVE

An air shut off valve shall be provided in the feed line to the air horns, under the dash on the driver's side.

WHELEN SIREN

A Whelen model 295SLSC1 electronic siren shall be provided. The siren has a selectable output of 100 or 200 Watts. The microphone shall be removable.

The siren head shall be wired battery switched. Auxiliary activation switches shall only be active when the emergency master and ignition are activated.

The electronic siren head shall be located in the upper dash.

The horn ring feature of the siren head shall be wired and activated, per the siren head manufacturers installation manual. See manual for operation.

The location of the siren mic clip shall be determined at the final inspection.



SIREN/HORN SELECTOR SWITCH

There shall be a three (3) position selector switch that shall allow the driver to switch activation of the automotive horn (air or electric) to the vehicle electric mechanical siren or electronic siren. The switch shall allow the standard steering wheel button to sound either the horn or the sirens.

The up position of the siren/horn selector switch shall be for the **Electronic siren.**

The middle position of the siren/horn selector switch shall be for the mechanical siren.

The bottom position of the siren/horn selector switch shall be for the electronic horn.

120 VOLT SHORELINE POWERED RECEPTACLE(S) IN CAB INTERIOR

One (1) 120-volt, 20 amp, 3-wire receptacle(s) shall be provided in the cab interior in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Duplex.

One (1) stainless steel wall plate(s) shall be installed.

The receptacle shall be located: in outlet box aft of officer's seat on side of engine tunnel

Side Mount Operator Stand Shall Be 54" Wide

OPERATOR STAND

A 54" wide modular operator stand with side mount controls, shall be installed between the cab and the apparatus body.

The operator stand shall be independently mounted and furnished with flex joints between the cab and the body to allow for flexure of the chassis frame during road travel. (No exceptions to this requirement). The operator stand substructure shall be fabricated of 304 stainless steel structural shapes and formed 304 stainless steel plate and shall also support the side running boards. It shall be installed on the chassis with a four point isolator arrangement that allows it to flex independently of the chassis frame.



OPEN BIN

A 27.63" wide open bin area shall be provided aft of the crosslay beds. The outward facing walls shall be vented as necessary for equipment such as a generator or other device which requires air flow and is located within the open bin.

The walls surrounding the open bin shall be 15.75" high.

OPERATOR STAND EXTERIOR FINISH

Pump panels, on both sides of vehicle and including the gauge panel and inspection doors, shall be brushed stainless steel. The outward facing exterior stainless steel surfaces of the open bin, if present, shall be also be brushed.

LEFT SIDE RUNNING BOARD WITH POCKET STEPS AND HOSE WELL

The left side running board shall be made of 3/16" aluminum tread plate. Two (2) supports shall extend from the operator stand framing to securely support the running board. The outer edges of the running board shall be flanged, i.e. formed down.

An air space shall be provided between the aluminum running board, the body and the operator stand to prevent moisture and debris from being trapped between these components.

There shall be one (1) hose well recess mounted in the running board. It shall be a minimum of 9" wide x 32.75" long x 11.50" deep. Black Dri-Dek® shall be provided in the well.

A built-in pocket step shall be located at both ends of the trough.

RIGHT SIDE RUNNING BOARD WITH POCKET STEPS AND HOSE WELL

The right side running board shall be made of 3/16" aluminum tread plate. Two (2) supports shall extend from the operator stand framing to securely support the running board. The outer edges of the running board shall be flanged, i.e. formed down.

An air space shall be provided between the aluminum running board, the body and the operator stand to prevent moisture and debris from being trapped between these components.

There shall be one (1) hose well recess mounted in the running board. It shall be a minimum of 9" wide x 32.75" long x 11.50" deep. Black Dri-Dek® shall be provided in the well.

A built-in pocket step shall be located at both ends of the trough.

RETAINING STRAP

A two-piece black polypropylene Velcro retaining strap shall be provided for the hose well. It shall be permanently attached on the inboard and outboard side of the trough and shall secure in the center. Looped ends of the strap shall be secured to the apparatus with footman's loops.



STEP LIGHT SHIELD

One (1) aluminum tread plate gusseted light shield that can be utilized as a stepping surface shall be provided on the driver's side pump panel. It shall be fabricated of 3/16" aluminum tread plate. Mounting flanges shall face inboard of the step.

An oval opening in the forward center of the stepping surface shall allow for a hand grip. A 1-1/4" knurled aluminum handrail shall be installed below the step and forward of the oval opening.

A TecNiq Eon LED light shall be installed above the stepping surface. It shall be activated with the other step lights.

CROSSLAY COVER

There shall be an aluminum cover for the crosslay. The cover shall be constructed of 3/16" aluminum tread plate and be hinged with a stainless steel piano hinge. The cover shall be hinged at the front of the hose bed and shall be provided with a rubber bumper on each end to prevent cover from contacting the cab.

CROSSLAY END FLAPS

A weighted lift-up cover shall be provided for the ends of the crosslay hose beds. The covers shall be made of 20 oz. per square yard polyester coated with a urethane top coat (vinyl). The vinyl covers shall be permanently attached to the ATP cover and have stainless steel spring clips and stainless steel hooks on the bottom corners.

This cover combination shall restrain the hose in the crosslay from unintentional deployment while the vehicle is underway in normal operations.

The vinyl end flaps cover shall be black in color. Color number of the vinyl is 705-1075.

YELLOW PERIMETER LINE

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of the cover shall be marked with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

WATEROUS PUMP

Pump shall be a Waterous CSU single stage 2000 GPM midship mounted centrifugal type, carefully designed in accordance with good modern practice. The pump shall be tested at the manufacturer's facility and certified by an independent testing organization.

Pump shall be NFPA 1901 current version compliant.

The pump shall be designed with a two-piece, horizontally split body with intake and discharge passageways in a single casting and on the same level.



TRANSMISSION LOCK UP

The direct gear transmission lockup for the fire pump operation shall engage when the pump shift control in the cab is activated and the transmission shift is changed to "Drive".

INTAKE PRESSURE RELIEF VALVE

A 2-1/2" Waterous non-pilot operated intake relief valve shall be installed to the pump intake manifold. It shall have a minimum pressure adjustment of 50 to 250 PSIG. The surplus water shall be plumbed to the underside of the truck away from the operator.

INTAKE PRESSURE RELIEF VALVE

A 2-1/2" Waterous non-pilot intake relief valve shall be permanently installed in the front inlet piping. It shall have minimum pressure adjustment of 75 to 250 PSI. The surplus water shall be plumbed to the underside of the truck away from the operator.

The relief valves shall be preset to 150 psi.

OVERHEAT PROTECTION MANAGER (OPM)

A Waterous Overheat Protection Manager (OPM) shall be installed to act as a safety device by releasing hot water from the discharge area of the pump to the ground.

The OPM consists of a valve that opens when the water in the pump reaches 140° F and a warning light that is triggered by a thermal switch when the water in the pump reaches 180° F.

The warning light acts as an additional protection device if the temperature inside the pump keeps rising although the valve is open. The OPM valve and switch are both mounted on two 1/2" tapped holes located near the center discharge area of the pump.

WATEROUS OPM AUDIBLE ALARM BUZZER

An audible alarm buzzer shall be provided for the Waterous Overheat Protection Manager (OPM). The alarm shall work in tandem with the OPM warning light if the temperature of the water in the fire pump reaches 180 degrees Fahrenheit.

PRIMING PUMP

A Trident Model #31.001.11 multi-location air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,690 LPM) or more.



PRESSURE GOVERNOR

A Waterous pressure governor model #83856-1E with rotary knob shall be installed. The control module dimensions shall not exceed 4.75" wide by 7.00" tall. The governor shall have a programmable preset, interlocks, units and alarm settings, 300psi to 600psi discharge pressure sensors, a programmable start in either RPM or pressure mode. An ambient light detector shall automatically adjust the display intensity for day/night operation. A red IDLE button shall return engine to idle speed and the governor shall be programmable for high idle operation. It shall recognize no, low or changing water conditions with automatic engine control response and an automatic low hydrant pressure alarm shall be armed when connected to a pressurized water source. The governor shall have NFPA interlock signal LED indicators and J1939 CAN bus engine information and control.

The governor shall operate in two control modes: PRESSURE OR RPM, maintaining steady pump discharge pressure by controlling the engine speed or by holding a selected engine RPM. Discharge pressure or engine RPM shall not vary when switching between modes. A throttle ready LED illuminates when the interlock signal is recognized. The governor automatically limits increase of pressure at the discharge when in the pressure mode.

Status Indicators shall include:

- Engine RPM, four (4) daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Engine oil pressure, shown on a tricolor green/yellow/red icon
- Engine coolant temperature, shown on a tricolor green/yellow/red icon
- Transmission temperature, shown on a tricolor green/yellow/red icon
- Battery voltage, shown on a tricolor green/yellow/red icon
- Pressure and RPM operating mode LEDs
- Pressure/RPM setting
- Throttle ready LED
- Ok to Pump LED

Warning Messages and Indicators shall include:

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

The Waterous pressure governor shall have a two-year warranty.

PUMP PIPING –STAINLESS STEEL, MANIFOLD AND HIGH PRESSURE HOSE

All suction and discharge lines shall use schedule 10 stainless steel pipe or heavy duty pressure/vacuum hose with stainless steel end fittings. Sweat soldered copper tubing is not acceptable.



Inlet valve controls do not have to be the locking type nor have the control rod. All controls shall actuate without binding, per the manufacturer's requirements.

WATEROUS VALVES

All 2.5" valves shall be Waterous full-flow ball-type valves with a chromium-plated bronze ball and bronze or stainless steel internal moving parts.

The Aux. inlet shall remain an Akron valve. (Per Engineering)

The Tank to pump Valve is Akron

LUBRICATION MANIFOLD

A lubrication manifold shall be provided to enable remote lubrication of up to six (6) Akron Brass handwheel or electric valves, in place of the standard lubrication fittings on the valves.

MASTER GAUGES

A pair of Ashcroft compound gauges shall be provided for the master Pump Intake and master Pump Discharge gauges. The gauges shall be 6" in diameter and have a pressure range of 30-0-400 and shall dampen vibration and pulsation. The gauges shall be the dry type for optimal performance in freezing temperatures. The gauge body and bezel shall be stainless steel construction with black lettering on white faces. The gauges shall each have an adjustable pointer and a vent hole to assist with condensation.

The master gauges shall be grouped together on the pump operator's control panel for ease of observation during pump operations, as required by NFPA 1901.

PRESSURE GAUGE(S)

Eleven (11) individual line pressure gauge(s) for the 1.50" and larger discharges shall be furnished. The gauge(s) shall be 3.5" in diameter and have a pressure range of 30-0-400 and shall dampen vibration and pulsation. Each gauge shall be the dry type for optimal performance in freezing temperatures. The gauge body and bezel shall be stainless steel construction with black lettering on white faces. Each gauge shall have an adjustable pointer and a vent hole to assist with condensation.

Pump Panel Engine Gauge Display NOT Required With Selected Pressure Governor



CLASS 1 WATER TANK LEVEL GAUGE REMOTE LARGE DISPLAY DRIVER

A Class 1 remote large display driver for the water tank level gauge shall be provided. The driver shall provide four (4) separate outputs for large remote tank level displays. Each output shall support multiple lights up to a 7.5 amp capacity and shall mimic the function of the Master Tank Level display.

The lights shall be interlocked with the parking brake to operate only with the parking brake set.

LARGE WATER TANK LEVEL DISPLAYS

Two (2) Whelen "PSTANK2" water tank level displays with chrome bezels shall be provided on the cab, one on each side of the cab. The displays shall be vertically mounted and wired to the Master water tank level gauge through a remote display driver module. The display shall activate when the maxi parking brake is activated.

The lights shall be interlocked with the parking brake to operate only with the parking brake set.

LARGE WATER TANK LEVEL DISPLAY

One (1) Whelen "PSTANK2" water tank level displays with chrome bezels shall be provided on the rear of the apparatus. The displays shall be vertically mounted and wired to the Master water tank level gauge through a remote display driver module. The display shall activate when the maxi parking brake is activated.

The lights shall be interlocked with the parking brake to operate only with the parking brake set.

Lights shall be mounted behind the crew cab door each side, up high, forward on the cab extension. Additional selected options may effect the exact placement of the light.

FOAM TANK LEVEL GAUGE

The apparatus shall be equipped with one (1) Class1 "ITLF-40R" tank level gauge(s) for indicating foam level. The tank level gauge shall indicate the liquid level on an 8-light red LED display and show increments of 1/8 of a tank.

The tank level gauge utilizes a pressure transducer that mounts on the outside of the tank for sensing water or foam levels. No probes are required for the tank.

The lights shall be interlocked with the parking brake to operate only with the parking brake set.

The foam tank level gauge shall be labeled: Foam Tank A.



Total assembly shall be fully engineered, and not a "make on job" fabrication where future replacement parts cannot be ordered from the apparatus builder. Bidder may be required to provide evidence of his ability to supply engineering drawings of the front inlet assembly and its individual parts.

5" BUTTERFLY VALVE

The front inlet shall include a handwheel controlled 5" butterfly valve. The chrome finished handwheel shall be located on the pump panel. The nameplate shall show handwheel direction for opening or closing. Valve shall be equipped with a thin profile disc. There shall be a right angle gear assembly mounted on top of valve with control rod extended to pump panel.

TANK FILL

There shall be a **3" pump to tank fill line installed with a 3" inline valve**. Valve shall be controlled at the pump panel with a chrome locking handle.

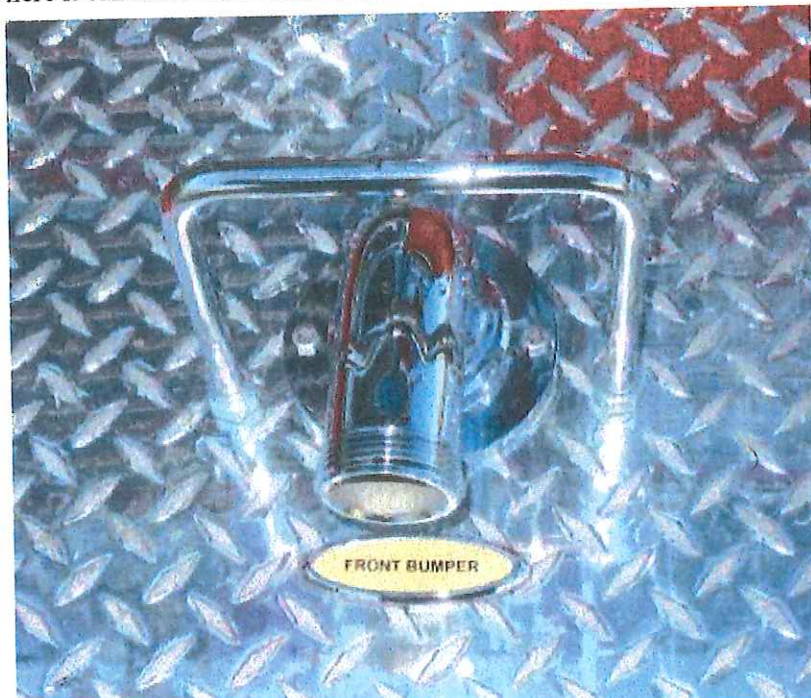
FRONT BUMPER DISCHARGE

One (1) 2.5" pre-connect discharge shall be located in the front bumper extension. The discharge shall be plumbed from the pump with 2.5" plumbing. It shall have a 2.5" manual full flow quarter turn valve with push/pull control. The discharge shall end in a chrome plated 90 degree swivel elbow.

The discharge shall be located on the bumper in the left inside (A) position.

SWIVEL STOP *

A U-shaped, polished rod swivel stop shall be provided for the front bumper discharge swivel. It shall prevent the swivel from rotating to the rear where it can come into contact with the cab during tilting operations.





MAIN PUMP INLET CAP(S) * *Remove*

Two (2) 6" NST long handled chrome plated cap(s) shall be provided for the main pump inlet(s).

LEFT SIDE AUXILIARY GATED INLET PLUG(S)

One (1) 2.5" NST chrome plated plug(s) and retaining chain(s) shall be provided for the left side 2.5" auxiliary gated inlet(s).

FRONT INLET SWIVEL

The front inlet shall extend up vertically through the aluminum treadplate gravel pan at the extreme right outer corner of the bumper extension. A polished chrome plated brass 6" NST right angle swivel with screen shall be threaded onto the 5" suction piping. The swivel shall rotate a full 180 degrees in a horizontal plane to allow soft hydrant hose (or hard drafting hose) to easily be attached to it and the hydrant with a minimum of effort and without special care regarding hose or vehicle alignment, i.e. the hose shall self-align itself with little assistance when pressurized by automatically turning the swivel to the optimum position. If drafting, the hose shall be able to be moved to different locations without re-positioning the truck. A lock shall be provided on the swivel to hold it in the travel position.

The swivel, when in the "in transit" position, shall not block apparatus headlights or warning lights (from a straight on perspective). Should there be an objectionable concern with the swivel affecting side headlight efficiency and recognition then an alternate higher location for them shall be available for the fire department's consideration.

No Storz Adapter Required

FRONT INLET CAP * *Remove*

A 6" NST rocker lug chrome plated cap shall be provided for the front inlet.

FRONT BUMPER DISCHARGE REDUCER, CAP & CHAIN

A 2.5" FNST x 1.5" MNST chrome plated adapter with 1.5" chrome plated cap and retaining chain shall be provided for the front bumper discharge.

LEFT SIDE DISCHARGE ADAPTER(S)

Two (2) 2.5" FNPT x 2.5" MNST chrome plated adapter(s) shall be provided for the 2.5" left side discharge(s).

LEFT SIDE DISCHARGE ELBOW(S)

Two (2) 2.5" FNST x 2.5" MNST 45 degree chrome plated elbow(s) shall be provided for the 2.5" left side discharge(s).



One (1) 5" Storz x 2.5" Male NST anodized adapter(s) with 2.5" hard anodized cap(s) and retaining chain(s) shall be provided for the right side discharge(s).

RIGHT SIDE DISCHARGE ADAPTER AND CAP(S) & CHAIN(S)

One (1) 5" Storz x 2.5" Male NST anodized adapter(s) with 2.5" hard anodized cap(s) and retaining chain(s) shall be provided for the right side discharge(s).

LEFT SIDE REAR DISCHARGE ADAPTER(S)

One (1) 2.5" FNPT x 2.5" MNST chrome plated adapter(s) shall be provided for the 2.5" left side rear discharge(s).

LEFT SIDE REAR DISCHARGE ELBOW(S)

One (1) 2.5" FNST x 2.5" MNST 45 degree chrome plated elbow(s) shall be provided for the 2.5" left side rear discharge(s).

LEFT SIDE REAR DISCHARGE CAP(S) & CHAIN(S)

One (1) 2.5" chrome plated cap(s) and retaining chain(s) shall be provided for the left side rear discharge(s).

3" DELUGE RISER W/ ELECTRIC CONTROL

A 3" deluge gun riser shall be installed above the pump terminating in the open bin with National Pipe Thread (NPT). Location to be determined on the P. E. Drawing and approved by the customer. Piping shall be installed securely so no movement develops when the line is charged. The riser shall be gated and controlled at the pump operator panel by an electric valve. The outlet shall be piped from the discharge manifold of the pump through 3" piping. An open/closed indicator light module and pressure gauge shall be provided on the pump panel.

Piping shall terminate above the pump housing floor approximately 12.5".

* There shall be A remote Slave Control in open Bin Area

DECK GUN

One (1) Elkhart Model 8500-02, part number 08500221, Vulcan® lightweight master stream device shall be installed on the deck gun discharge. The aluminum deck gun shall have a vaned 3" waterway. The waterway shall allow for flows of up to 1250 GPM. The monitor shall have a rotating base (horizontal handwheel rotates with monitor).

The monitor shall have a Tiller Bar to control the full 360-degree horizontal rotation. Vertical travel of 135 degrees with 90 degrees above to 45 degree below the horizontal plane shall be provided. The unit shall be equipped with two (2) positive stainless-steel twist-to-lock mechanisms for both vertical and horizontal travel. The monitor shall have ball bearing races with bronze components and be supplied with Zerk grease fittings for ease of lubrication.



TELESCOPING MONITOR PIPE

One (1) Task Force Tips model XG18VL-PL manually telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" by lifting a quick release latch located at the base of the extension tube. This latching device shall be capable of locking the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees.

A sensor shall be located on the waterway that signals a 12-volt indicator light installed in the cab to illuminate to indicate that the monitor is raised. The indicator light shall be installed in the information display located in the cab overhead switch panel area.

The aluminum riser shall have a 3" waterway; hard coat anodized finish and be furnished with a 3" Victaulic inlet and a 3" male NPT outlet.

EXTEND-A-GUN BRACKET SET

One (1) Task Force Tips model # XGB-33 bracket set shall be provided. The set shall include two saddle brackets and is designed to securely mount the Extend-A-Gun™ telescoping waterway.

3" ASA DECK GUN FLANGE

A 3" 4-bolt ASA flange shall be furnished and installed on the end of the deluge riser.

FOAM SYSTEM

There shall be one (1) Elkhart #240 125 GPM By-Pass Foam Eductor System, permanently installed in-line of a preselected, existing 1-1/2" discharge. It shall be capable of using both Class A and Class B foams. The metering device shall be designed so that it can be set anywhere between 0% to 6%. Change over to water only shall be easily accomplished. Foam agent feed line from the foam tank to the eductor shall be brass, stainless steel or other nonferrous, non-corrosive material. Complete operating instructions shall be provided.

FOAM CAPABLE DISCHARGE

The front bumper 2-1/2" discharge shall be the only foam outlet when an in-line eductor foam system has been installed.

FOAM PROPORTIONING SYSTEM TESTING

The foam proportioning system accuracy shall be tested using method 1 of section A.20.10.1 as specified in NFPA 1901, current edition: "*Substituting Water for Foam Concentrate*". The foam proportioning system is operated at the water flow rates at which the system is to be tested. Water is used as a substitute for foam concentrate.



WARRANTY

Waterous warrants their valves for a period of **five (5) years** after purchase against defects in materials or workmanship.

WARRANTY

The Ashcroft gauge(s) shall have a five (5) year manufacturer's warranty. See warranty certificate for complete details.

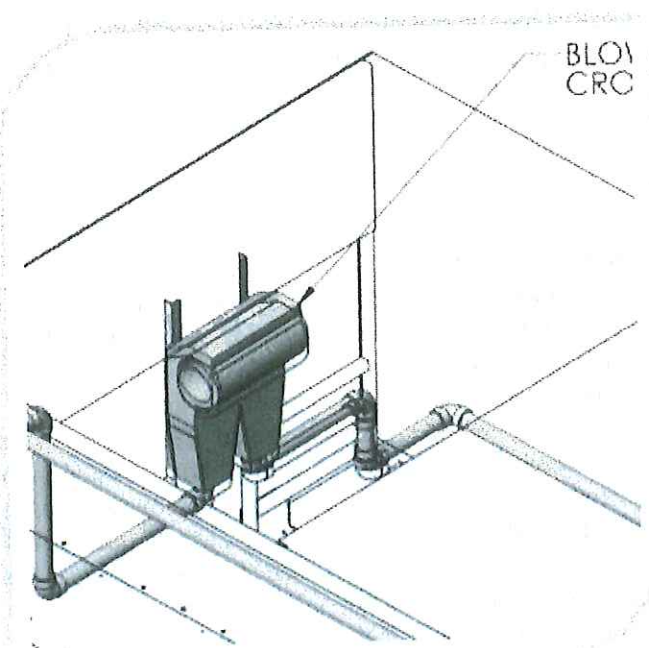
WARRANTY

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T-TYPE WATER TANK

A T-shaped polypropylene water tank shall be supplied. It shall have a capacity of 2500 U.S. gallons and shall be constructed per the manufacturer's specifications.

Tank will be notched for sabrevent system blower unit at front





Hose floor loading shall support up to 200 lbs. per sq. foot and shall be evenly distributed whenever possible. Other equipment such as generators, portable pumps, etc. shall not be mounted directly to the tank top.

VENT OVERFLOW PIPE-HOSE EXTENSION

Rubber hose shall be connected to the vent overflow pipe on the lower portion of the water tank. This hose shall direct any overflowing water behind the rear axle of the apparatus.

When the water tank has one or more of the following: dump chute(s), large tank fill or multiple tank fill(s), the vent overflow pipe shall not be provided, as this causes the vent overflow pipe size to increase.

FOAM TANK

A sixty (60) gallon "A" foam tank shall be incorporated into the water tank. These 60 gallons shall be in addition to the amount of water specified. It shall be built by the same manufacturer as the water tank, and per the manufacturer's specifications.

FOAM FILL TOWER

The foam fill tower shall be a minimum dimension of 8" x 8" outer perimeter (standard size to be 12" x 12"). The fill tower shall be provided with an easy opening, hinged, latching cover. Within the fill tower shall be an anti-foaming fill pipe. The fill tower shall be constructed to facilitate complete interior flushing as required. The fill tower shall be equipped with a pressure/vacuum vent that enables the tank to compensate for changes in pressure or vacuum when filling or withdrawing foam concentrate.

If the tank manufacturer is United Plastics Fabricating, the foam fill tower shall be green in color. If the tank manufacturer is ProPoly of America, then the fill tower shall be black in color.

REAR TANK FILL, LEFT SIDE * *DLAS*

A 3" direct rear tank fill shall be provided with a ball type quarter turn valve. The valve shall be mounted at the left side rear wall of the apparatus, below the hose bed. The water tank shall be equipped with a diffuser panel at the fill entry boss to prevent baffle damage by the water stream entering the tank. The valve shall have a side mounted swing handle control and shall terminate in a chrome plated 3" swivel female connector with a screen. A 30-degree sweep elbow, positioned downward, shall be provided to eliminate hose kink during refill.

REAR TANK FILL, RIGHT SIDE * *Dawn*

A 3" direct rear tank fill shall be provided with a ball type quarter turn valve. The valve shall be mounted at the right side rear wall of the apparatus, below the hose bed. The water tank shall be equipped with a diffuser panel at the fill entry boss to prevent baffle damage by the water stream entering the tank.



The driver side valve/chute controls and rear valve/chute controls shall be located at the rear of the body towards the driver's side, above the tail light cluster.

The officer's side valve/chute controls shall be located at the rear of the body toward the officer's side, above the tail light cluster.

DUMP CONTROLS MASTER SWITCH

A Master Switch for the dump controls shall be located on the cab dash. Enabling this switch allows the dump controls to work. Turning the Master Switch off prevents the dump controls from functioning.

QUICK DUMP INTERLOCKS

Interlocks shall be installed to prevent the quick dump from moving when the compartment doors are open or if an equipment rack (ladder, hard suction, portable tank) is in the area of the quick dump travel.

207" OVERALL BODY LENGTH

The overall length of the body shall be 207". The distance from the front exterior edge of the body to the midline of the tandem rear axle shall be 97.5". Body overall width shall be 100", fender to fender.

STAINLESS STEEL BODY CONSTRUCTION

The body and side compartments shall be constructed of heavy duty 3CR12 stainless steel. The body shall be welded on external or hidden surfaces wherever possible to insure a clean compartment interior look. The compartments shall be a "sweep out" design with the floor higher than the door sill. The compartment floors shall be a minimum of 2.5 mm 3CR12 stainless steel. All compartment seams shall be caulked with gray adhesive/sealant. Each compartment shall be rated for 500 lbs. of storage. False bulkhead panels shall be provided on the inside of the forward and rearward wall of the side compartment panel to cover and protect all electrical wiring and components. This also provides a clean interior for equipment mounting. These panels shall be removable. Removable service panels shall be placed within each of the false bulkhead panels. Door frames on compartments with hinged doors shall be fabricated by flanging the door opening edges inward 1.88" and bending out again .75" to form an angle. The hose body side panels and partitions shall be raised in 5" increments to provide adequate storage for the required and specified hose load.



The usable compartment space for the full depth area shall be 37.5" wide x 29.75" high x 26.5" deep and the area under the roll shall be 37.5" wide x 27.75" high x 12.5" deep. This compartment shall have an aluminum shutter type roll-up door.

The full height compartment behind the rear wheels shall have a doorframe to doorframe dimension of 47.5" wide x 63.75" high. The clear door opening shall be 46" wide x 57.5" high. The usable compartment space for the full depth area shall be 47.5" wide x 29.75" high x 26.5" deep and the area under the roll shall be 47.5" wide x 27.75" high x 12.5" deep. This compartment shall have an aluminum shutter type roll-up door.

Each upper compartment above the rear wheels shall have a doorframe to doorframe dimension of 46.75" wide x 30.5" high. The clear door opening shall be 43.25" wide x 27" high. Each usable compartment space shall be 52.25" wide x 33" high x 11.75" deep. The compartments shall each have a horizontally hinged door.

RIGHT SIDE COMPARTMENTS

The full height right hand side panel at 207" long by 70" high shall be made of stainless steel. This panel consists of one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels, and two (2) upper compartments above the rear wheels. A ladder rack pivot area shall separate the two compartments above the rear wheels. **Compartments over wheels shall have hinged doors.**

The full height compartment ahead of the rear wheels shall have a doorframe to doorframe dimension of 37.5" wide x 63.75" high. The clear door opening shall be 36" wide x 57.5" high. The usable compartment space for the full depth area shall be 37.5" wide x 29.75" high x 26.5" deep and the area under the roll shall be 37.5" wide x 27.75" high x 12.5" deep. This compartment shall have an aluminum shutter type roll-up door.

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VENTS

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

REAR STAINLESS STEEL INNER LINERS

Full semi-circular inner liners shall be provided in each wheel housing. They shall be constructed of 304 stainless steel and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The bottom edge of liner shall be reinforced along its full length, however, it shall not have a formed reinforcement flange to avoid trapping dirt and debris.



Adequately reinforced tread plate shall cover any front to back walls facing the step area up to the height of the hose bed floor. Then the remaining upper inside surface shall be covered with brushed stainless steel. All tread plate shall be secured with threaded fasteners.

The rear facing bulkhead of the compartments shall be painted job color.

ROLL-UP COMPARTMENT DOORS

The side compartment doors shall be R.O.M./Robinson aluminum shutter roll-up type doors (made in the U.S.A.) with an anodized finish. A magnetic door ajar and compartment light system designed within the door to conceal moving parts and prevent parts exposure in the compartment shall be provided. Slats shall be double-wall box frame extrusion and must be anodized to eliminate oxidation and rusting. Exterior surface shall be flat and interior surface to be concave to help loose equipment from jamming the door. The latch system shall be a full width, one piece, lift bar, enabling operation with one hand. The manufacturer's standard door frame design may be altered or modified to accommodate the roll-up doors.

The following Side Body Compartments will have Roll Doors: LS1, LS4, RS1, and RS4

HINGED COMPARTMENT DOORS

The following compartments will have hinged doors: LS2, LS3, RS2, and RS3

The side compartment doors shall be lap type, double panel construction with .079" outer/.079" 3CR12 stainless steel inner panels. (NO EXCEPTIONS TO THIS STATEMENT.) Outer panel edges that form the lap portion of the door shall be "hemmed" (bent over and back 180 degrees) over the inner panel edges. Inside corners, at the hem area, shall be welded and ground smooth.

The doors shall be weather stripped with an automotive bulb type extruded rubber inner seal. A second outer seal of closed cell rubber shall be placed on the lap edge of the door to prevent damage to the paint finish. Outer seal shall have corrugated surface to prevent sticking.

The doors shall be mounted on stainless steel piano hinges with a pin diameter of .25". Mounting holes shall be slotted vertically on one side of the hinge and horizontally on the other side to provide for proper adjustment of the door. The hinge pins shall have spun ends (crowns) at both ends to hold them in place and provide a finished look. Eberhard 206 latches with stainless steel "D" ring handles shall be provided on the lift, single, drop down, and lock door (double door set-up). The free door (double door set-up) shall have an (2) Eberhard latches top and bottom with a single handle located inside the door (standard location at bottom). Isolation tape shall be furnished between the door hinge and door jam. A rubber gasket shall be provided between the "D" ring handle and the door.

Horizontally hinged doors shall be held in the opened position with gas cylinder type stays. Switches for automatic compartment light operation shall be installed in the door hinge area.



BODY DOOR HINGES

All piano hinges on the main body exterior doors shall be mill finished.

TAILBOARD

The tailboard shall be 16" deep from the rear edge to the body face and shall run the full width of the body (100" wide). The tailboard surface shall be 3/16" thick aluminum tread plate with 2-1/2" deep flanges on the front, rear, and side edges. It shall be installed over a heavy-duty steel framework to prevent the tailboard from bending and flexing. The tailboard support shall be constructed of formed 1/4" - 3/8" plate, 2" X 3" tubes, 2" X 2" angles, and 3" structural channels in a welded assembly. It shall be bolted directly to the chassis frame rails, not the body.

All mounting bolts used to fasten the tread plate to the tailboard support shall be 5/16" truss-head Phillips. Self-tapping sheet metal screws shall not be used to install the aluminum tread plate. There shall be a 1/2" gap between the tailboard and the body to prevent moisture from being trapped. Rear outside corners shall have a 4" 45 degree miter.

HUMAT VALVE MOUNT

One (1) Humat brand Humat valve mount p\n FDB01ST shall be provided and installed on the rear step.

Location to be determined at pre-construction meeting

Length - 9"

Width - 6"

Height - 9"

HYDRAULIC LADDER RACK

The ground ladders shall be mounted above the side compartments on a swing down ladder rack. This rack is to be constructed of 6061 aluminum plate and 6063 aluminum tubing. The rack is to be mounted to the body at three pivot locations; front, rear and center. All pivot locations shall be bronzed bushed and all pins shall be 1" diameter minimum. The center arm shall be constructed of two 3/4" thick aluminum plates spaced no less than 4.75" apart. The side pivot arms shall be constructed of solid 3/4" x 2-1/2" aluminum bar, gusseted at the top where joining the tube structure. The tube structure under the ladder shall be no less than 2" x 2" x 1/8" wall and shall be diagonally braced. There shall be a minimum of 12" of clearance beneath the tube structure to the top of the body ATP catwalk. Selection of options like hose bed covers may have an affect on this dimension.

One (1) double acting hydraulic cylinder shall be furnished at the center pivot location to move the rack up and down. The cylinder shall have a 2 1/2" diameter bore size and a 1-1/4" diameter piston rod size. The piston rod shall be threaded and provided with an adjustable clevis. Mounted directly to the cylinder shall be a flow control valve to prevent the rack from dropping suddenly in case of hydraulic line burst or leakage. A tie rod type cylinder with O-ring seals will not be acceptable.



A guarded toggle switch shall control the hydraulic pump through a 12 volt relay. This switch shall be located on the pump panel to allow the operator full view of the rack when lowering. One over center stainless steel cam lock shall secure the ladder rack at the front when in the up position. This cam lock shall prevent the ladder rack from moving both side to side and from moving fore and aft during road travel. The cam lock shall be installed at the forward position within easy reach of the operator. An indicator light shall be installed in the cab to notify the driver when the cam lock is unlocked from the stored position. There shall be interlocks to prevent the rack from being lowered when the cam is closed.

The ladder rack shall be capable of being lowered within 12 seconds. When lowered, the bottom of the rack shall not be more than 54 inches above the ground.

A warning light, activated when parking brake is disengaged, shall be provided in the cab to indicate when rack is in motion or down. Reflective striping shall be provided on the outward side of the rack.

Whelen model OSR00FCR red LED lights with clear lens and chrome flange shall be provided on the front and rear of the rack. They shall be activated when the rack is in use.

Whelen model OSR00FCR red LED lights with clear lens and chrome flange shall be provided on the front and rear of the rack. They shall be activated when the rack is in use.

FINISH – BODY SIDE COMPARTMENT INTERIOR(S)

Eight (8) body side compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

FINISH – BODY REAR COMPARTMENT INTERIOR(S)

One (1) body rear compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

DA FINISHED HOSE BED

The interior of the hose bed shall be "DA" finished only, no paint shall be provided. If the body is made of stainless steel, the exposed surfaces on the interior of the hose bed shall be manufactured with 304 stainless steel.

HYDRAULIC LADDER RACK FINISH

The hydraulic ladder rack shall have an Etchfinish.



HOSE BED CROSS PANEL DIVIDER

A hose bed cross panel divider shall be provided to separate the tank fill tower(s) from the hose load. The divider shall be constructed of 304 stainless steel and shall have a DA finish. The divider shall be installed laterally 4" behind the tank fill tower(s); if the water tank is an "L" tank, the divider shall be installed at the rear of the raised portion to support the hose bed dividers and slat flooring. The divider shall be bolted in place, allowing for its removal to facilitate tank removal.

HOSE BED DIVIDER(S)

One (1) smooth aluminum hose bed divider(s) shall be provided to separate the individual hose loads. The divider shall be constructed of .1875" aluminum sheet welded to a T-shaped extruded foot that runs the full length of the partition. The divider(s) shall be fully adjustable by providing slide tracks at the front and rear of the hose bed. The divider shall be held in place by two (2) 5/16" tapered bolts at each end of the partition. The mounting bolts shall turn into threaded slide blocks located in the track. Holes in the T-shaped foot shall be countersunk so the bolt head is flush with the surrounding surface and will not damage the hose.

Partitions smaller than 36" in all dimensions shall have an Etchfinish. Larger partitions shall have a DA finish.

There shall be a handhold slot 3" from the back edge of the rear of the partition. The handhold shall be the full height of the partition beginning 3.5" from the top and bottom edges.

The hose bed dividers height shall approximately match the height of the body risers.

If an upper cross rail is provided, the dividers shall be shortened approximately 3.50" to clear the cross rail.

HOSE BED DIVIDER REINFORCEMENT(S)

A 1.25" round aluminum extrusion slotted on the bottom to fit over the top and rear edge of the partition shall be provided on one (1) hose bed divider(s). The extrusion shall be beveled at the corner and welded in place to reinforce the partition. This option is required for partitions with excessive length or height.

HOSE BED COVER

A .125" thick aluminum tread plate hose bed cover shall be provided. They shall fully cover the entire top of the hose bed. The cover shall consist of four (4) doors with continuous piano type hinges bolted to each hose bed side panel. The hinges shall be bolted to the covers. The edges of each cover shall be flanged down 1.375" and each corner shall be welded. Each cover shall be reinforced with 1.25" square tubes welded to the underside of the cover for increased strength.

The covers shall be supported by (2) 2" x 3" tubular A-frame assemblies. One A-frame support shall be bolted between the left hand and right hand risers (or body sides if no risers are needed) at the rear of the hose bed, and one shall be bolted halfway between the front and rear of the hose bed.



FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be located on the access cover. The sign reads: "Fall Hazard-Railings NOT provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill"

COMPARTMENT DOOR SILL PROTECTOR(S)

A brushed stainless steel sill protector, approximately .50" wide, shall be provided on nine (9) body compartment door sill(s) to protect the painted finish.

The following compartments shall have a brushed sill protector:

**LS1, LS2, LS3, LS4
RS1, RS2, RS3, RS4
Rear**

DRI-DEK®

Eighteen (18) black Dri-Dek® mat(s) shall be provided and installed on body compartment floors and/or in shelves/trays as specified. Ramped edging shall not be included.

SABRE VENT SYSTEM

A Sabre Vent system Consisting of a 400 c.f.m. blower unit which forces air through a loop of 1 ½" perforated PVC pipe, the Sabre-Vent provides 1,000 – 1,300 daily air changes per compartment. The closed loop concept assures a consistent air flow. Sabre-Vent shall be installed on the body to ventilate the compartments

ADJUSTABLE SHELF OR SHELVES

Eight (8) adjustable shelf or shelves (with open corners) made from 3/16" smooth aluminum sheet metal shall be provided in the body compartment(s). The shelf lip shall be 1.75" high. Each shelf shall be supported by four (4) stainless steel angles bolted to Aluma-Strut tracks.

When in a split depth compartment, the Aluma-Strut tracks shall only be provided in the upper or lower area where the shelf(s) are located.

ROLL OUT TRAY(S)

Two (2) base depth rollout tray assembly(s) shall be provided in the body compartment(s). The tray shall be vertically adjustable on Aluma-Strut attached to the side walls of the compartment.



FENDER STORAGE

Storage compartments in the fender area of the apparatus shall be comprised of the following:

On the driver's side of the apparatus, forward of the rear axle there shall be:

On the driver's side of the apparatus, between the tandem axles in the forward position, there shall be:

On the driver's side of the apparatus, between the tandem axles in the rearward position, there shall be:

On the driver's side of the apparatus, aft of the rear axle there shall be:

On the officer's side of the apparatus, forward of the rear axle there shall be:

On the officer's side of the apparatus, between the tandem axles in the forward position, there shall be:

On the officer's side of the apparatus, between the tandem axles in the rearward position, there shall be:

On the officer's side of the apparatus, aft of the rear axle there shall be:

One (1) enclosure to accommodate two (2) air bottles, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. The double oval compartments shall have a single wide opening and a raised nylon center divider to prevent the bottles from rolling together. A detainment strap shall be installed.

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RUB RAIL - BODY SIDES

Four (4) Brushed stainless steel rub rails shall be provided along the lower portion of the body, beneath the compartment doors, on each side to prevent damage to the body and finish. The rub rails shall be a minimum of 2-3/8" wide x 1" deep and shall be mounted on rubber supports. Rub rails shall have a 1" x 1" chamfer at the front and rear of the rails. The rails shall protrude a minimum of 1.75" from the face of the body.

No Rub Rail Required on Rear of Apparatus

FINISH - ADJUSTABLE SHELF (OR SHELVES)

Eight (8) adjustable shelf (or shelves) shall have a DA finish on the outside edge of the shelf.

FINISH - ROLL OUT TRAY(S)

Two (2) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

FINISH - ROLL OUT TRAY(S)

One (1) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

GENERATOR/INVERTER TEST AND CERTIFICATION

The generator/inverter shall be third party tested at the manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests shall be provided with the delivery documentation.

Hydraulic Generators - Pumpers, Tankers, Rescues

"HOT SHIFT" PTO

A "hot shift" PTO shall be provided. The "hot shift" shall allow the hydraulic generator to be shifted into use or turned off while the apparatus is in motion or in a pumping mode. Prior to engaging the "hot shift" the RPM's of the engine must be reduced to 1200 RPM.

HYDRAULIC GENERATOR

A Harrison 10.0 kW hydraulic generator system shall be provided installed on the apparatus. The system shall be capable of producing the nominal output power of 10.0 kW, 120V/240V, single phase, 60 Hz. The generator shall be installed per the manufacturer recommendations and shall be capable of supplying full power during all engine speeds or operation modes.



A 120-volt, 20 amp, 3-wire receptacle shall be provided inside two (2) body compartment(s) in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. When the generator is shut down, the load is automatically returned to the shoreline. The receptacle shall be labeled accordingly.

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Single.

Two (2) stainless steel wall plate(s) shall be installed.

The location of the receptacle shall be determined at time of order.

One (1) 20 amp breaker(s) shall be installed. It shall not have a ground fault interrupter.

KUSSMAUL AUTO TRANSFER SWITCH

A Kussmaul 091-134 Auto Interlock II switch shall be provided and installed to allow the receptacle to be fed from shorepower through the Auto Eject when the generator is not in use.

CORD REEL(S)

One (1) Hannay Model ECR1618-17-18 power rewind cord reel(s) for live electric cable shall be provided. The reel(s) shall be 12 volt electric rewind and be equipped with an electrical collector ring with a minimum #10 gauge, 4-conductor wiring. Capacity of each reel shall be 200 feet 10/4 gauge electric cable.

CORD REEL(S)

Delete

One (1) Hannay Model ECR1618-17-18 power rewind cord reel(s) for live electric cable shall be provided. The reel(s) shall be 12 volt electric rewind and be equipped with an electrical collector ring with a minimum #10 gauge, 4-conductor wiring. Capacity of each reel shall be 200 feet 10/4 gauge electric cable.

CORD REEL CABLE(S)

Delete

One (1) 200 foot length(s) of 10/4 type SO electric cable shall be provided and installed on the cord reel.

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CAB 120V SIDE ROOF MOUNT LIGHTS

Two (2) Whelen Pioneer Plus™ PFP1ACB single panel LED floodlight(s) shall be installed on the cab roof, one each side parallel to the edge, using Whelen PBA106BU mounting brackets. The light head shall provide 7,500 lumens and draw 0.6 amps. It shall operate at 120 volts AC.

The light head and mounting bracket shall be powder coated black.

The cab side roof lights shall be centered over the cab side access doors, one each side.

The body side roof mounted light(s) shall be located as follows:

Over LS1/RS1 and LS4/RS4

BODY REAR 12V RECESS MOUNT LIGHT(S)

Two (2) Whelen Pioneer™ LED model PFH1B single panel flood light(s) shall be straight recessed on the body side(s) using a PBH103B recess mount. It shall operate at 12 volts DC, draw 6.5 amps, and generate 8,875 lumens.

The light head shall be black with a chrome flange.

The recess mounted lights shall be located as high as possible on the left side and the right side on the rear of the body. Other equipment and light selections may affect placement.

One (1) 12 volt light(s) shall be switched at the cab dash.

One (1) 12 volt light(s) shall be switched at the cab dash.

Two (2) 120 volt light(s) shall be switched at the cab dash.

Two (2) 120 volt light(s) shall be switched at the cab dash.

The light shall not activate when a cab door on that side opens.

REVERSE ENABLE SWITCH

A reverse enable switch shall be installed on the cab dash which when activated shall allow the rear scene lights to engage any time the apparatus transmission is placed into reverse. This is in addition to the standard switch which shall allow the driver to engage the lights anytime the battery is on.



LIGHT TOWER WIND SHROUD

An aluminum tread plate shroud shall be provided for the nested light tower. The shroud shall consist of a forward, slanted, wall to the front of the apparatus and two (2) walls, one each side of the apparatus. The shroud shall be approximately 88" wide, with the forward face slanted at a 45 degree angle, 48.5" long and approximately 10" high.

The AN250 motor shall take 60 seconds to rewind 100 feet.

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The reel shall be painted Hannay Graphite.

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REEL REWIND SWITCH

The reel shall be equipped with a Hannay Reel Rewind Push-Button Control #90030.

REEL REWIND SWITCH

The reel shall be equipped with a Hannay Reel Rewind Push-Button Control #90030.

The reel rewind switch shall be located at the manufacturer's discretion in a position where the operator can safely observe the rewinding operation.

The reel rewind switch shall be located at the manufacturer's discretion in a position where the operator can safely observe the rewinding operation.

The reel shall be located on the right side in the open bin above the operator stand.

The reel shall be installed on the back wall of the following compartment:

The reel shall be located, as specified R-4 compartment back wall as high as possible

CAPTIVE ROLLERS

A Hannay Assembly "C2" 4-way roller assembly with 1-1/2" diameter stainless steel rollers and cast alloy brackets shall be mounted on the exterior face of the open bin riser.

ROLLER ASSEMBLY

The reel shall be equipped with a captive roller assembly mounted directly on reel frame. It shall be supplied by Hannay and have a 4-way roller assembly with stainless steel rollers mounted in a stamped steel housing.



SUCTION HOSE STORAGE

A top hinged lift up access door made of smooth aluminum and held open with gas stays shall be provided above the rear compartment at the back of the body. Door shall be connected to the tel-tale in the cab. When the door is open there shall be a fabricated metal sleeve placed over the rear compartment and connecting to the rectangular storage cavity in the water tank. This shall create a storage for the hard suction hoses.

PIKE POLES/MOUNTING

The following pike poles shall be furnished:

PIKE POLE(S)

One (1) 10 ft. Fire Hooks Unlimited NH-10 pike pole(s) with wood handle(s).

PIKE POLE(S)

One (1) 6 ft. Fire Hooks Unlimited NHF-6 pike pole(s) with fiberglass handle(s).

PIKE POLE(S)

One (1) 12 ft. Fire Hooks Unlimited NHF-12 pike pole(s) with fiberglass handle(s).

ALUMINUM TUBE PIKE POLE MOUNT(S) ~~Alm.~~

Three (3) aluminum tube(s) shall be mounted to facilitate storage of pike poles.

The pike pole mount shall be located on the ladder rack.

PORTABLE TANK STORAGE BRACKETS

A Set of brackets shall be attached to the streetside hydraulic rack that will allow the portable tank to be mounted there and also allow for removal of tank for usage.

PORTABLE TANK

A Fol-Da-Tank brand, model FDTA-3000, 3000 gallon portable tank with a 1" x 1" x .125" thick aluminum frame and 22 oz red Hypalon liner shall be provided.

The portable tank shall be stored: on streetside hydraulic rack



CHEMICAL CLEANING AND TREATMENT

All painted surfaces shall be washed with a chemical degreaser, cleaner and surface conditioner to allow for proper adherence of primer coat. Then they shall be washed with a neutralizer product. All products used are approved by paint supplier and applied under strict process control to meet performance requirements on corrosion prevention and chip resistance.

PRIMER / SURFACE COATING FOR TOP COAT APPLICATION

A minimum of 2 coats of Epoxy based primer shall be applied to surfaces inside and outside of cabs and bodies and all other parts of apparatus that shall receive a Top color coat to achieve required corrosion protection. After that a minimum of 2 coats of sealer shall be applied over the primer surface. The overall thickness of the primer/sealer coat shall be between 3 to 8 mils wet. Once dried and cured all surfaces that shall receive a top coat shall be hand sanded to achieve a flat and smooth surface to meet gloss and other paint quality standards. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with Seagrave's Paint Quality Standard. The underside of the cab and body shall be finished with one coat of epoxy primer specifically designed for this application to prevent corrosion and provide chip resistance to typical paved road conditions.

TOP COAT APPLICATION

Each Top Coat final color on the apparatus is applied using a two stage paint process. The unit shall be thoroughly hand cleaned to eliminate dust residues and to detect any imperfection in the surfaces to be painted. A fast drying 3.5 VOC polyurethane base coat color shall be applied using a cross coat application technique. Additional coats may be applied as required until the coat thickness reaches 2.0 to 6.0 mils wet and a full hide appearance. If a second color is required, proper masking shall be applied to the unit and the base coat application process shall be repeated for the second color. A slow drying low VOC High Build clear coat shall be applied using a cross coat application technique until a minimum of 5.0 mils wet is achieved. The unit is then properly heated to assure flash and cure of the paint before leaving the paint booth. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according to Seagrave's Paint Quality Standard.

Each batch of color topcoat shall be tested for precise color match following paint supplier color matching process. A visual color match shall be checked prior to paint using customer approved paint chips.

The cab and body shall be primed and finish painted prior to installation on the chassis to ensure paint coverage in all areas including the difficult to reach places. The exterior and interior of the cab shall be finish painted before the doors are installed or any assembly is started to ensure a finish painted surface beneath all trim items.

PRIMER / SURFACE COATING FOR SINGLE COAT APPLICATION

A minimum of 2 coats of Epoxy based primer shall be applied to all surfaces of the apparatus that shall receive a single color coat to achieve required corrosion protection. This is a wet coat process and it shall achieve a 3.0 to 8.0 mils wet thickness and complete coverage of all bare metal. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with Seagrave's Paint Quality Standard.

- PTO & hydraulic pump (when furnished).
- Cab lift cylinders & hydraulic pump.
- Shock absorbers.
- Fuel filter.
- Air drier and air cleaner.
- Electrical wiring and loom.
- Air brake lines, valves and mounting brackets.

SEAGRAVE FRAMEGARD

A corrosion barrier film shall be sprayed to all surfaces of the chassis frame rail(s) and cross members after frame assembly. Manual touch up shall be applied where/as necessary. The barrier shall be a corrosion inhibiting sealant which shall provide extreme resistance to abrasion and chemical deterioration. The sealant shall pass US Military spec MIL-C-0083933A for bend resistance, chip resistance and flexibility. It shall pass ASTM B117 (1000 hours corrosion resistance test standard).

PAINT INSIDE OF CAB

The inside of the cab shall be provided with gray Zolatone paint following the Zolatone Coat application process.

The following components shall be painted:

- Exposed interior surfaces of the cab structure
- Exposed interior surfaces of the driver/officer/crew doors
- All interior "Metal" access/wire covers of the cab
- Head bumper brackets
- Miscellaneous brackets, if present: camera mounts, non-recessed radios, charger covers.

PAINT INSIDE OF CAB

The inside of the full tilt cab shall be clear coated following the Zolatone Clear Coat application process in the same components that received a Zolatone application.

LINE-X® - CAB INTERIOR

All cab interior LINE-X® shall have a smooth finish, with the exception of the cab floor overlays and the interior back liner, if provided.

Customer understands and is aware, that due to the process of applying LINE-X®, that when a smooth finish is requested and applied, due to over spray and changing of the plane that the LINE-X® is being applied, that a consistent finish is not guaranteed.



Definition: Etchfinish: The part(s) shall be cleaned and etched to a uniform bright finish.

CHASSIS

Chassis bracket: Painted same as cab exterior

CAB

- Cab compartments, including cab side access compartments:
 - Exterior Finish: LINE-X®.
 - Interior Finish:
 - Δ Mill finish
 - Δ Upgrade available to DA or Paint
- Cab compartment shelves:
 - DA -Just the outside edge of the shelf shall be DA'd.
 - All other surfaces shall be mill finish.
- Bumper / running board hose wells:
 - Flange: DA
 - Interior & exterior walls: Mill finish
 - If the hose well sticks above the gravel pan: DA the edges
- Inner liners: Mill finish
- All steps, including pull downs & those on access ladders: DA outsides
- Hat Section Bracket for Compartment, Ground or Step Lights:
 - Mill finish.
 - If compartment is painted, then the hat section brackets shall be painted.
- Trim Rings: Mill finish
- Patch plates: Brushed S/S (Upgrade available to polished or ATP) STD is No patch plates
- Label backing plates: DA
- Marker light guards: As purchased
- Switch guards – S/S: Brushed
- Pike poles tubes - Aluminum:
 - D/A
 - Upgrade available to paint



- Running Board w/ Floating Trough:
 - Frame shall be painted black.

STANDARD FINISHES FOR SMALL PARTS, BODY ONLY

Definition: Mill Finish: as is from the manufacturer; no finish applied. It may have scratches, but it shall be shiny as a result of being cleaned through a deoxidization process. Parts with mill finish may have been cleaned in a dipping process to deoxidize the part.

Definition: Etchfinish: The part(s) shall be cleaned and etched to a uniform bright finish.

BODY

- Bumper / running board hose wells:
 - Flange: DA
 - Interior & exterior walls: Mill finish
 - If the hose well sticks above the gravel pan: DA the edges
- Inner liners: Mill finish
- All steps, including pull downs: DA outsides
- Hat Section Bracket for Compartment, Ground or Step Lights:
 - Mill finish.
 - If compartment is painted, then the hat section brackets shall be painted.
- Trim Rings: Mill finish
- Patch plates:
 - STD is No patch plates
 - Brushed S/S
 - Upgrade available to polished or ATP
- Label backing plates: DA
- Marker light guards: As purchased
- Switch guards – S/S: Brushed
- Compartment louvers: Same color as compartment interior walls,
- Compartment shelves & trays:
 - DA (Just the outside edge of the shelf shall be DA'd. All other surfaces shall be mill finish.

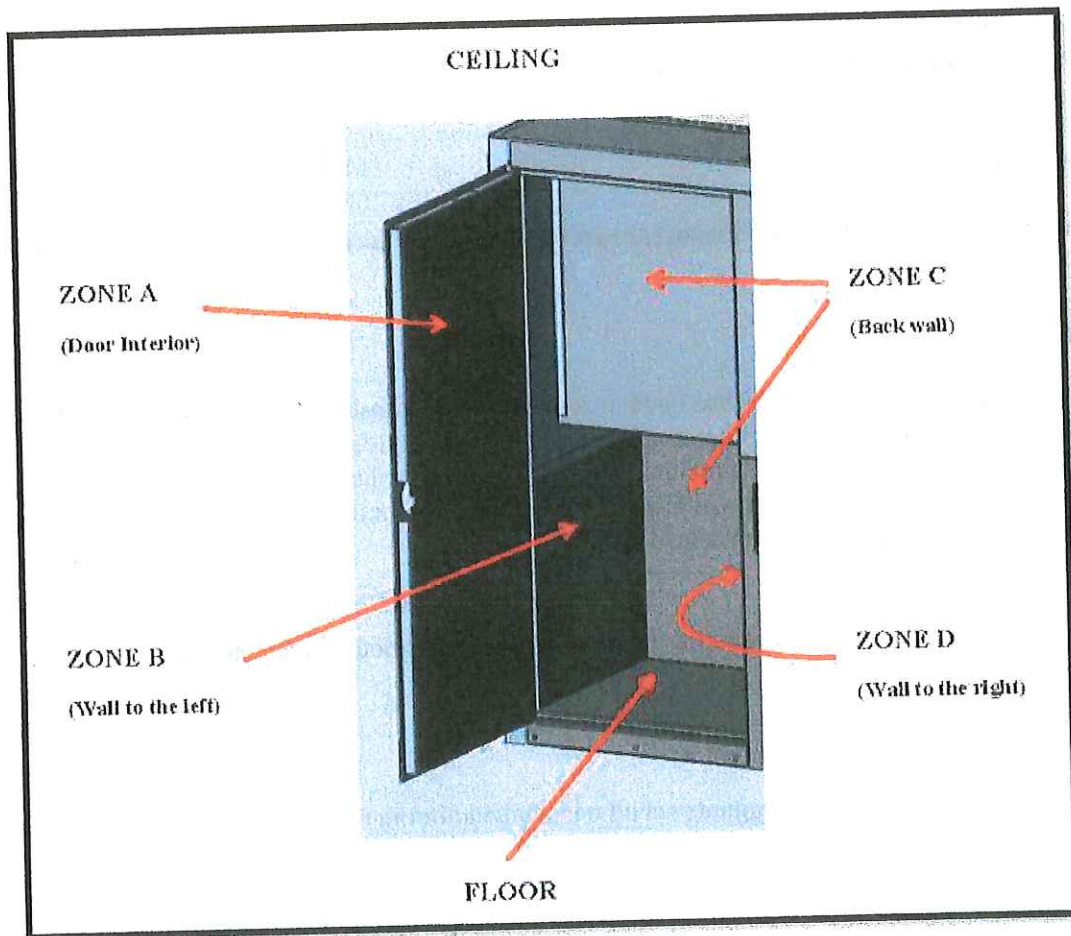


ACORN NUTS

Acorn nuts shall be installed on all exposed screws and bolts in areas where personal injury may result and/or damage to equipment may occur. For further details, please refer to the enclosed standards document.

COMPARTMENT LOCATIONS - SEAGRAVE DEFINITION FOR COMPONENT LOCATIONS

All definitions are based on facing the opening to the compartment.
These definitions apply to all compartments.





- Vector images (Ai or EPS file types)
- Full Color (CMYK) version or
- Full color Pantone version, if exact color matching is required

The customer shall also provide the name and size of font for any graphics text, if specific font is desired.

APPARATUS LOGOS AND NAME PLAQUES

Logos and name plaques shall be placed on the apparatus as identified on the attached PDF.

MANUFACTURER'S LIMITED WARRANTY

A Seagrave limited two (2) year warranty for parts and labor shall be provided.

CAB FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A Seagrave cab limited fifteen (15) year structural warranty shall be provided.

STAINLESS STEEL BODY FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A Seagrave limited stainless steel body fifteen (15) year structural warranty shall be provided.

CHASSIS FRAME RAIL & CROSS MEMBER STRUCTURAL LIMITED LIFETIME WARRANTY

A Seagrave limited lifetime frame rail and cross members structural warranty shall be provided.

PAINT/CORROSION LIMITED WARRANTY

A Seagrave limited pro-rated paint six (6) year warranty shall be provided.

PUMP PLUMBING LIMITED WARRANTY

A Seagrave limited stainless steel pump plumbing ten (10) year warranty shall be provided.

DEALER SHOP LABOR

The dealer shall provide forty (40) hours of shop labor to install miscellaneous customer supplied equipment items. No work shall be completed until the customer supplies specific mounting locations. Any mounts needed for the equipment shall be at additional cost to the customer.