

Town of Gate City  
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Town Manager – Greg Jones  
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Mayor  
Jamie Lawson  
Vice Mayor  
Kevin Barnett

Council Members  
Allen Dougherty  
H. Pat Elliott  
Dexter Harmon  
Wallace W. Ross Jr.

## FY2027 Community Project Funding (CPF) – Project Summary

**Project Title:** Gate City Volunteer Fire Department – Fire Engine (Pumper) Replacement

**Requesting Entity:** Town of Gate City, Virginia (Local Government)

**Point of Contact:** Greg Jones, Town Manager, Town of Gate City, VA

**Project Location:** Gate City, Scott County, Virginia

**Amount Requested (FY27 only):** \$1,091,141

**Project Type:** Public Safety / Emergency Response (Fire Apparatus)

### Project Need and Purpose

The Town of Gate City is requesting FY2027 Community Project Funding to replace (one-for-one) the primary frontline fire engine (pumper) used by the Gate City Volunteer Fire Department. The current apparatus, a 1996 Pierce Saber, has been in service for nearly thirty years and is increasingly difficult and costly to maintain due to aging mechanical systems, rising maintenance costs, and limited parts availability. This request will not expand the Town's fleet; it will replace an aging unit essential to maintaining dependable emergency response.

### Community Benefit and Impact

The Gate City Volunteer Fire Department provides fire protection and emergency response for the Town of Gate City and supports surrounding areas through mutual aid agreements in nearby areas of Scott County. The department responds to more than 200 emergency incidents annually, including structure fires, vehicle accidents, medical emergencies, and other incidents requiring rapid response to protect lives and property. Replacing the primary pumper will improve response reliability, firefighter safety, and operational readiness—helping protect residents, businesses, schools, and public facilities and strengthening overall community resilience in a rural Appalachian community with limited local revenue capacity.

### Federal Nexus / Authorization

This request has a federal nexus because it will be submitted under USDA Rural Development's Community Facilities program, which supports financing for essential community facilities in rural areas, including public safety and emergency response. Replacing Gate City's primary fire engine will maintain essential rural emergency response capacity, support regional mutual aid readiness, and help protect life, property, and critical public infrastructure in an underserved rural community.

### Readiness / Use of Funds

Upon enactment, the Town will proceed with procurement and issue a purchase order/contract award within 12 months to obligate funds; delivery will follow the manufacturer's lead time. Funds will be used solely for the purchase of a publicly owned fire engine for public safety purposes, and the Town will follow all applicable federal, state, and local procurement requirements to ensure transparency and audit readiness.

*Where Mountains & Music Make Memories*

## GATE CITY FIRE DEPARTMENT

PIERCE SABER

1,000 GALLON PUMPER SPECIFICATIONS

MARCH 3, 2026





## Proposal for Furnishing Apparatus

Mar 3, 2026

Department: Gate City Fire Department

Attn: Assistant Chief Tim White

140 Bishop Dr, Gate City, VA 24251

Upon an order being placed by you, and final acceptance by Pierce Manufacturing the apparatus and equipment herein named will be manufactured for the following prices:

	Price
One (1) New Saber Pumper per specifications dated 3-3-26	\$1,091,141.00

Total : **\$1,091,141.00**

Any discount(s), whether implied or explicit, will be applied upon delivery, acceptance, and final invoicing of Apparatus. Said apparatus and equipment are to be built and shipped in accordance with the specifications hereto attached, delays due to strikes, war, or intentional conflict, failures to obtain chassis, materials, or other causes beyond our control not preventing, within about <sup>630 - 720</sup> calendar days after receipt of this order and the acceptance thereof by Pierce Manufacturing. Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

**Persistent Inflationary Environment:** If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts our order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month. Atlantic will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

**Taxes:** Tax is not included in this proposal. In the event that the purchasing organization is not exempt from sales tax or any other applicable taxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due.

**Cancellation:** In the event this proposal is accepted, and a purchase order is issued then cancelled or terminated by Customer before completion, Atlantic Emergency Solutions may charge a cancellation fee of 30% of the purchase price.

**Terms:** The terms of this proposal will be governed by the laws of the state of Virginia. No additional terms or conditions will be binding upon Atlantic Emergency Solutions unless agreed to in writing and signed by a duly authorized officer of Atlantic Emergency Solutions.

This proposal is valid for thirty (30) day from date of this proposal.

Sincerely,

Bobby St.Clair, Regional Account Manager

845 Third Street  
Vinton, VA 24179  
(540) 353-5299 - Cell  
bstclair@atlanticemergency.com

X \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_



GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Atlantic Emergency Solutions is pleased to submit a proposal to Gate City Fire Department for a **Pierce® triple combination pumper** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then, we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 110 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 75,000 apparatus. Our Wisconsin facilities have over 1.6 million total square feet of floor space situated on approximately 162 acres of land. Our Bradenton, Florida facilities have 410,000 square feet of floor space situated on approximately 35 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of applicable NFPA standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

Images and illustrative material in this proposal are as accurate as known at the time of publication but are subject to change without notice. Images and illustrative material are for reference only and may include optional equipment and accessories and may not include all standard equipment.

#### **GENERAL DESIGN AND CONSTRUCTION**

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

#### **QUALITY AND WORKMANSHIP**

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2025 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2014 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society D1.3 2018 requirements for structural welding of sheet metal. Our flux core arc welding uses Hobart FabCO Excel-Arc 71, AWS A5.20, E71T1C/M and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Pierce also employs an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. A copy of the certificate of compliance is included with this proposal.

In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to ensure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least five (5) fire departments/municipalities that have purchased vehicles for a second time is provided.

#### **DELIVERY**

The apparatus will be delivered under its own power to ensure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

#### **MANUAL AND SERVICE INFORMATION**

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

#### **SAFETY VIDEO**

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. A link to the video is also available at [www.Pierceparts.com](http://www.Pierceparts.com). This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

#### **PERFORMANCE TESTS**

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power, nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet the current edition of applicable NFPA standards acceleration and braking requirements.

#### **SERVICE AND WARRANTY SUPPORT**

Pierce dealership support will be provided by Atlantic Emergency Solutions by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within two hundred fifty (250) miles of the fire department.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$15,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operator's manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 80 personnel dedicated to customer support. Technical support is available 24/7/365 via the toll free hot line and has four (4) on staff EVT's that offer hands-on repair and maintenance training classes multiple times a year.

**LIABILITY**

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

**INSURANCE PROVIDED BY BIDDER**

**Commercial General Liability Insurance**

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Each Occurrence:	\$1,000,000
Products/Completed Operations Aggregate:	\$1,000,000
Personal and Advertising Injury:	\$1,000,000
General Aggregate:	\$2,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**Commercial Automobile Liability Insurance**

The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:

Each Accident Combined Single Limit:	\$1,000,000
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**Umbrella/Excess Liability Insurance**

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:	\$3,000,000
Each Occurrence:	\$3,000,000

The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.

**INSURANCE PROVIDED BY MANUFACTURER**

**Product Liability Insurance**

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:

Each Occurrence:	\$1,000,000
Products/Completed Operations Aggregate:	\$1,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**Umbrella/Excess Liability Insurance**

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Each Occurrence:	\$25,000,000
Aggregate:	\$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

**SINGLE SOURCE MANUFACTURER**

Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.

Your apparatus will be manufactured in Bradenton, Florida.

**NFPA 2024 STANDARDS**

This unit will comply with the NFPA standards effective January 1, 2024, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company will designate, in writing, who is qualified to witness and certify test results.

**NFPA COMPLIANCY**

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in the current edition at time of contract execution. Fire Department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA."

**PUMP TEST**

The rated water pump will be tested, approved, and certified by an ISO certified independent third party testing agency at the manufacturer's expense. The test results, along with the pump manufacturer's certification of hydrostatic test, the engine manufacturer's certified brake horsepower curve, and the manufacturer's record of pump construction details will be forwarded to the Fire Department.

**GENERATOR TEST**

If the unit has a generator, the generator will be tested, approved, and certified by an ISO certified independent third party testing agency at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

**BID BOND NOT REQUESTED**

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5 percent bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

**PERFORMANCE BOND NOT REQUESTED**

A performance bond will not be included. If requested at a later date, one will be provided to you for an additional cost and the following will apply:

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

If the Producer Price Index of Components for Manufacturing [[www.bls.gov](http://www.bls.gov) Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts the order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.

The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

**APPROVAL DRAWING**

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

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

**ELECTRICAL WIRING DIAGRAMS**

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**AMP DRAW REPORT**

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
  - The nameplate rating of the alternator.
  - The alternator rating under the conditions specified per:
    - Current edition of applicable NFPA standards.
  - The minimum continuous load of each component that is specified per:
    - Current edition of applicable NFPA standards.
  - Additional loads that, when added to the minimum continuous load, determine the total connected load.
  - Each individual intermittent load.

All of the above listed items will be provided by the bidder per the current edition of applicable NFPA standards.

**FIRE APPARATUS PARTS MANUAL**

There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

The manual(s) will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

Each manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

**Service Parts Internet Site**

The service parts information included in these manuals are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

**CHASSIS SERVICE MANUALS**

There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual will contain the following sections:

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

**CHASSIS OPERATION MANUAL**

The chassis operation manual will be provided on one (1) USB flash drive. The manual will be in the English language.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**SABER FR CHASSIS**

The Pierce Saber FR® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis will be the manufacturer's first line tilt cab.

**WHEELBASE**

The wheelbase of the vehicle will be 184.50.

**GVW RATING**

The gross vehicle weight rating will be 48,500 lb.

**FRAME**

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

**FRONT AXLE**

The front axle will be a reverse "I" beam type with inclined king pins. It will be a Hendrickson SteerTek™ axle, with a rated capacity of 20,000 lb.

**FRONT SUSPENSION**

The front springs will be a Hendrickson, Steertek™ NXT, taper leaf design, with a ground rating of 20,000 lb.

**SHOCK ABSORBERS**

Hendrickson Steertek shock absorbers will be provided on the front axle.

**FRONT OIL SEALS**

Oil seals with viewing window will be provided on the front axle.

**FRONT TIRES**

Front tires will be Goodyear® 315/80R22.50 radials, 20 ply G289 WHA tread, rated for 20,400 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.

**REAR AXLE**

The rear axle will be a Meritor™, Model RS-25-160, with a capacity of 27,000 lb.

**TOP SPEED OF VEHICLE**

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 68 mph / 109 kph.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**REAR SUSPENSION**

The rear suspension will be Standens, semi-elliptical, 3.00" wide x 52.50" long, 12-leaf pack with a ground rating of 27,000 lb. The spring hangers will be castings.

The two (2) top leaves will wrap the forward spring hanger pin, and the rear of the spring will be a slipper style end that will ride in a rear slipper hanger.

A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.

**REAR OIL SEALS**

Oil seals will be provided on the rear axle(s).

The rear suspension will be provided with an auxiliary spring package.

**REAR TIRES**

The rear tires will be four (4) Goodyear Armor Max MSD, 12R22.50 radials, load range H, rated for 27,120 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.

**TIRE BALANCE**

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

**TIRE PRESSURE MANAGEMENT**

There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

**CHROME LUG NUT COVERS**

Chrome plastic lug nut covers will be supplied on front and rear wheels.

**FRONT HUB COVERS**

Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.

**MUD FLAPS**

Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**WHEEL CHOCKS**

There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.

**Wheel Chock Brackets**

There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted one (1) forward and one (1) rearward of the left side rear tire.

**ELECTRONIC STABILITY CONTROL**

A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco.

The system will monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system will automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system will monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system will selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

**ANTI-LOCK BRAKE SYSTEM**

The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any wheel begins to lockup, a signal will be sent to the control unit. This control unit will then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

**AUTOMATIC TRACTION CONTROL**

An anti-slip feature will be included with the ABS. The Automatic Traction Control will be used for traction in poor road and weather conditions. The Automatic Traction Control will act as an electronic differential lock that will not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) will work with the engine ECU, sharing information concerning wheel slip. Engine ECU will use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. An "off road traction" switch will be provided on the instrument panel. Activation of the switch will allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

**BRAKES**

The service brake system will be full air type by Meritor™.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Front brakes will be Model EX225 Disc Plus, disc type with automatic pad wear adjustment and 17.00" ventilated rotors for improved stopping distance.

The rear brakes will be Meritor™, Disc Plus, Model EX225, disc operated with automatic slack adjusters and a 17.00" ventilated rotor for improved stopping distance.

**AIR COMPRESSOR, BRAKE SYSTEM**

The air compressor will be a Wabco single piston compressor with a 26.8 CI displacement.

**BRAKE SYSTEM**

The brake system will include:

- Brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system minimum capacity of 4,272 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi
- A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)
- 1/4 turn drain valves on each air tank

The air tank will be primed and painted to meet a minimum 750 hour salt spray test.

The air tanks will be painted same as frame color.

To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

**BRAKE SYSTEM AIR DRYER**

The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.

**BRAKE LINES**

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

**AIR INLET**

One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located forward in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**ADDITIONAL AIR TANK**

An additional air tank with 1454 cubic inch displacement will be provided to increase the capacity of the main air brake system. This tank will be plumbed into the rear half of the brake system.

The air tank will be primed and painted to meet a minimum 750 hour spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

The air tank(s) will be painted same as frame color.

The output flow of the engine air compressor will vary with engine rpm. Full compressor output will only be achieved at governed engine speed. Engine speed will be limited by generators, pumps and other PTO driven options.

**ENGINE**

The chassis will be powered by an electronically controlled engine as described below:

Make:	Paccar
Model:	MX
Power:	510 hp at 1600rpm
Torque:	1850 lb-ft at 1000rpm
Governed Speed:	1900 rpm
Emissions Certification:	EPA 2027
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	13.7L
Starter:	DP60
Fuel Filters:	Dual cartridge style with check valve, water separator, and water in fuel sensor

The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

**HIGH IDLE**

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**ENGINE BRAKE**

The compression release brake option is a fully integrated MX engine braking system. It utilizes the turbocharger and back pressure valve, but adds in a hydraulically operated compression brake to increase overall retarding power.

To maximize the effectiveness of the compression brake the MX engine brake system works in conjunction with the turbocharger and back pressure valve.

The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.

**CLUTCH FAN**

A fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.

**ENGINE AIR INTAKE**

The engine air intake will be located above the engine cooling package. It will draw fresh air from the front of the apparatus through the radiator grille.

The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine.

The ember separator will be easily accessible by tilting the cab.

**EXHAUST SYSTEM**

The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system will include an aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab.

The exhaust will terminate horizontally ahead of the right side rear wheels and will extend 2.00" past the body rub rail. The exhaust pipes will be aluminized steel.

There will be an aluminized steel exhaust diffuser with a standard straight tip on the end provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

**RADIATOR**

The radiator and the complete cooling system will meet or exceed the current edition of applicable NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The radiator core will consist of aluminum fins, having a serpentine design, brazed to aluminum tubes.

The radiator core will have a minimum front area of 1060 square inches.

Supply tank will be made of heavy duty glass-reinforced nylon and the return tank will be made of aluminum. Both tanks will be crimped onto the core assembly using header tabs and a compression

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

gasket to complete the radiator core assembly. There will be a full steel frame around the inserts to enhance cooling system durability and reliability.

The radiator will be compatible with commercial antifreeze solutions.

The radiator assembly will be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.

The radiator will include a de-aeration/expansion tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

### **COOLANT LINES**

Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by Pierce Manufacturing.

Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.

### **FUEL TANK**

A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

A 0.75" drain plug will be located in a low point of the tank for drainage.

A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.

The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines will be provided as recommended by the engine manufacturer.

### **DIESEL EXHAUST FLUID TANK**

A 7.3 gallon diesel exhaust fluid (DEF) tank will be provided and mounted under the cab on the driver's side.

A fill inlet will be provided on the driver's side of the cab. The lift up door will be spring loaded and be painted.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**TRANSMISSION**

An Allison 6th generation, Model EVS 4000P, electronic, torque converting, automatic transmission will be provided.

The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.

Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with an amber light and buzzer will be installed on the cab instrument panel.

**TRANSMISSION SHIFTER**

A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be:

1st	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
6th	0.64 to 1.00
R	4.80 to 1.00

**TRANSMISSION COOLER**

A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.

**DRIVELINE**

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts will be dynamically balanced before installation.

A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.

**STEERING**

Dual steering gear, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and Paccar hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings.

A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**STEERING WHEEL**

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.

**LOGO AND CUSTOMER DESIGNATION ON DASH**

The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text will be: Gate City

The second row of text will be: Fire

The third row of text will be: Dept.

**BUMPER**

A one (1) piece bumper manufactured from 0.25" formed steel with a 0.38" bend radius will be provided. The bumper will be a minimum of 10.00" high with a 1.50" top and bottom flange, and will extend 22.00" from the face of the cab. The bumper will be 95.28" wide with 45 degree corners and side plates.

To provide adequate support strength, the bumper will be mounted directly to the front of the C channel frame. The frame will be a bolted modular extension frame constructed of 50,000 psi tensile steel.

The bumper will be metal finished and painted to match the lower job color of the apparatus.

**Gravel Pan**

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and the cab face. The pan will be properly supported from the underside to prevent flexing and vibration.

**LEFT SIDE HOSE TRAY**

A hose tray will be placed in the left side of the extended bumper.

The tray will have a capacity of 150' of 1.75" double jacket cotton-polyester hose.

Black rubber grating will be provided at the bottom of the tray. Drain holes will be provided.

**Left Side Hose Tray Restraint**

There will be one (1) pair hose tray restraint straps located over the left side mounted tray.

The restraints will be a pair of 2.00" wide black nylon straps with Velcro® fasteners provided. The strap(s) will be used to secure the hose in the tray.

**RIGHT SIDE HOSE TRAY**

A hose tray will be placed in the right side of the extended bumper.

The tray will have a capacity of 25' of 5.00" double jacket cotton-polyester hose.

Black rubber grating will be provided at the bottom of the tray. Drain holes will be provided.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**Right Side Hose Tray Restraint**

There will be one (1) pair hose tray restraint straps over the right side hose tray.

The restraints will be a pair of 2.00" wide black nylon straps with Velcro® fasteners provided. The strap(s) will be used to secure the hose in the tray.

**TOW HOOKS**

Two (2) chromed steel tow hooks will be installed under the bumper and attached to the front frame members. The tow hooks will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow hooks will not be used for lifting of the apparatus.

**FRONT BUMPER NOTCH**

The front bumper will be notched for recessing of the Q2B siren. The notch will be designed so that the bumper is one continuous piece. The notch will be welded in place for strength with a continuous top and bottom flange. All welds will be metal finished for appearance. The siren will be located Center of the bumper.

**CAB**

The Saber FR cab will be designed specifically for the fire service and manufactured by the chassis builder.

The cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be a heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts), and rear wall areas. The A-pillar will be constructed of solid A356-T5 aluminum castings. The B-pillar and C-pillar will be constructed from 0.13" wall extrusions. The rear wall will be constructed of two (2) 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 4.625" x 3.864" x 0.090" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.25" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.13" firewall plate, covered with a minimum 0.090" front skin thickness, and reinforced with a full width x 0.50" thick cross-cab support located just below the windshield and fully welded to the engine tunnel. The cross-cab support will run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and the front skin.

The cab floors will be constructed of 0.125" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of structural material at the front floor area. The front floor area will also be



## GATE CITY FIRE DEPARTMENT SABER PUMPER SPECIFICATIONS

supported with two (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift. This tubing will run from the floor wireway of the cab to the engine tunnel side plates, creating the structure to support the forces created when lifting the cab.

The cab will be 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability.

The centerline of front axle to the rear of the cab will be 70.00" long.

The cab will have an overall height (from the cab roof to the ground) of approximately 99.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight rating, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The floor to ceiling height inside the crew cab will be 54.50" in the center and outboard positions.

The crew cab floor will measure 46.00" from the rear wall to the front of the rear facing seat risers.

The engine tunnel, at the rearward highest point (knee level), will measure 61.50" to the rear wall.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The cab will be a full tilt cab style.

A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

### **CAB ROOF DRIP RAIL**

For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be painted to match the cab roof, and bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.

### **FENDER LINERS**

Full circular inner fender liners in the wheel wells will be provided.

### **PANORAMIC WINDSHIELD**

A 1-piece safety glass windshield will be provided with over 2,775 square inches of clear viewing area. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: outer light, middle safety laminate, and inner light. The outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.



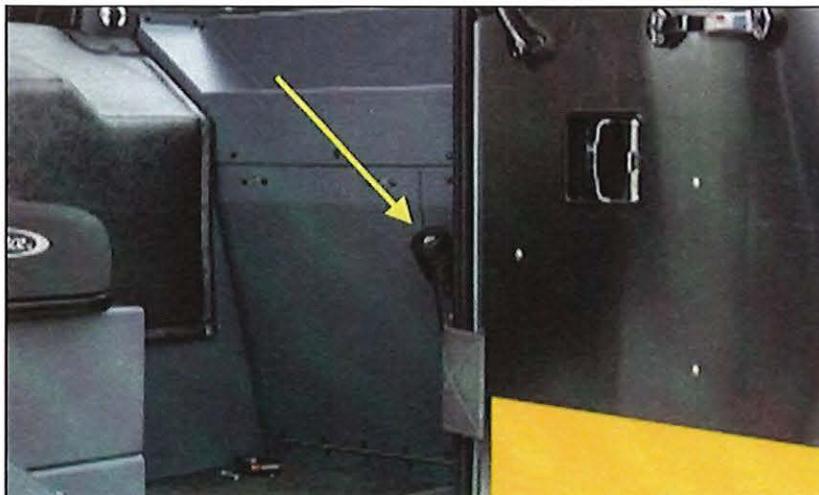
GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**WINDSHIELD WIPERS**

Three (3) electric windshield wipers with washer will be provided that meet FMVSS and SAE requirements.



The washer reservoir will be able to be filled without raising the cab.



[Washer Reservoir Location]

**ENGINE TUNNEL**

Engine hood side walls will be constructed of 0.375" aluminum. The top will be constructed of 0.125" aluminum and will be tapered at the top to allow for more driver and passenger elbow room.

The engine hood will be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current edition of applicable NFPA standards.

The engine tunnel will be no higher than 17.00" off the crew cab floor.

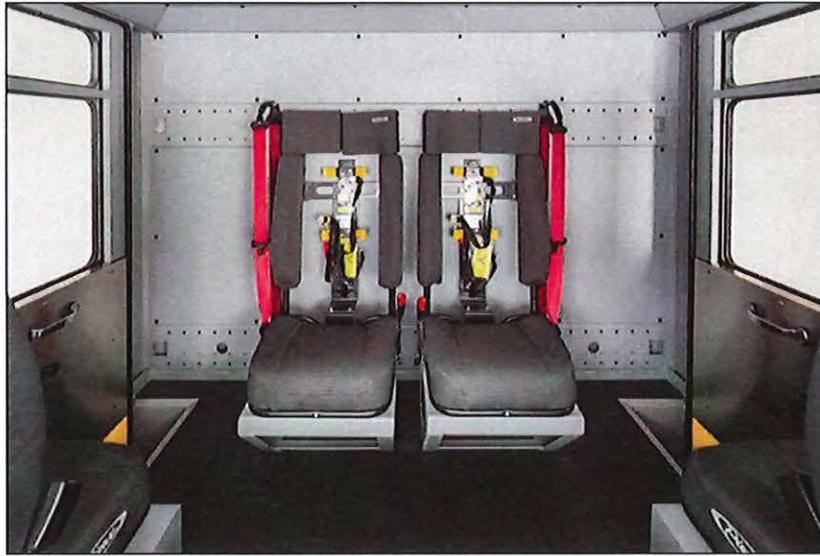
**INTERIOR CAB INSULATION**

The cab will include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, a minimum of 1.00" insulation in the crew cab floor, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

**INTERIOR CREW CAB REAR WALL ADJUSTABLE SEATING (PATENT PENDING)**

The interior rear wall of the crew cab will have mounting holes every 2.75" to allow for adjustability of the forward facing crew cab seating along the rear wall. Seats will be adjustable with use of simple hand tools allowing departments flexibility of their seating arrangement should their department needs change.

## GATE CITY FIRE DEPARTMENT SABER PUMPER SPECIFICATIONS



### CAB REAR WALL EXTERIOR COVERING

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

### CAB LIFT

A hydraulic cab lift system will be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

Hydraulic pump will have a manual override for backup in the event of electrical failure.

Lift controls will be located on the right side pump panel or front area of the body in a convenient location.

The cab will be capable of tilting 43 degrees to accommodate engine maintenance and removal.

The cab will be locked down by a 2-point normally closed spring loaded hook type latch that fully engages after the cab has been lowered. The system will be hydraulically actuated to release the normally closed locks when the cab lift control is in the raised position and cab lift system is under pressure. When the cab is completely lowered and system pressure has been relieved, the spring loaded latch mechanisms will return to the normally closed and locked position.

The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.



GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the left side between the chassis and cab frame when the cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.

**Cab Lift Interlock**

The cab lift system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.

**GRILLE**

A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, will be provided on the front center of the cab.

**DOOR JAMB SCUFFPLATES**

All cab door jambs will be furnished with a 1.00" polished stainless steel scuffplate, mounted on the striker side of the jamb.

**SIDE OF CAB MOLDING**

Chrome molding will be provided on both sides of cab.

**MIRRORS**

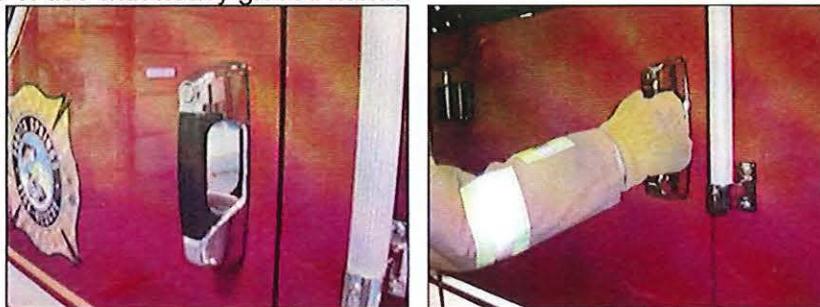
A Retraco, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.

**DOORS**

To enhance entry and egress to the cab, the forward cab door openings will be a minimum of 37.50" wide x 63.37" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab door openings will be a minimum of 34.30" wide x 63.37" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins will be constructed from 0.090" aluminum.

A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.



[Exterior Door Handle]

## GATE CITY FIRE DEPARTMENT SABER PUMPER SPECIFICATIONS

Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.



[Interior Door Handle]

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome handle will be provided on the inside of each cab door for ease of entry.

A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.

The bottom cab step at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.

### Door Panels

The inner cab door panels will be constructed out of brushed stainless steel.

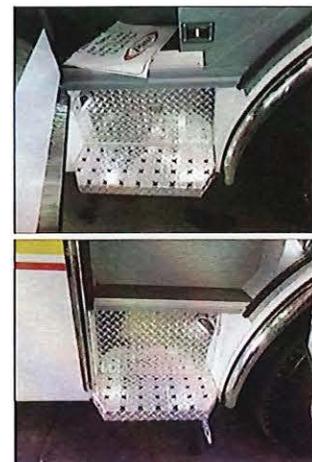
### MANUAL CAB DOOR WINDOWS

All cab entry doors will contain a conventional roll down window.

### CAB STEPS

The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 25.00" wide, and the crew cab steps will be 21.65" wide with a 10.00" minimum depth. The inside cab steps will not exceed 16.50" in height.

The vertical surfaces of the step well will be aluminum treadplate.



### CAB EXTERIOR HANDRAILS

A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.

## GATE CITY FIRE DEPARTMENT SABER PUMPER SPECIFICATIONS

### **STEP LIGHTS**

There will be six (6) white LED step lights with chrome housing installed for cab and crew cab access steps.

- One (1) light for the left side cab access steps.
- Two (2) lights for the left side crew cab access steps.
- Two (2) lights for the right side crew cab access steps.
- One (1) light for the right side cab access step.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The lights will be activated when the battery switch is on and the adjacent door is opened.

### **FENDER CROWNS**

Stainless steel fender crowns will be installed at the cab wheel openings.

### **CREW CAB WINDOWS**

One (1) fixed window with tinted glass will be provided on each side of the cab, to the rear of the front cab door. The windows will be sized to enhance light penetration into the cab interior. The windows will measure 18.70" wide x 23.75" high with chrome window trim.



### **CAB DASH**

The driver side dash, switch panel located to the right of the driver, and center console will be an easily removable high impact resistant polymer cover.

The instrument gauge cluster will be surrounded with a high impact ABS plastic contoured to the same shape of the instrument gauge cluster.

The officer side dash will be a flat top design with an upper beveled edge to provide easy maintenance and will be constructed out of aluminum and painted to match the cab interior.

### **MOUNTING PLATE ON ENGINE TUNNEL**

Equipment installation provisions will be installed on the engine tunnel.

A 0.25" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel .75" to allow for wire routing below the plate.

The mounting surface will be painted to match the cab interior.

### **CAB INTERIOR**

The cab interior will be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The engine tunnel will be padded and covered, on the top and sides, with dark silver gray 36 ounce leather grain vinyl resistant to oil, grease, and mildew.

For durability and ease of maintenance, the cab interior side walls will be painted aluminum. The rear wall will be painted aluminum.

The headliner will be installed in both forward and rear cab sections. Headliner material will be vinyl. A sound barrier will be part of its composition. Material will be installed on an aluminum sheet and securely fastened to interior cab ceiling.

The forward portion of the cab headliner will permit easy access for service of electrical wiring or other maintenance needs.

All wiring will be placed in metal raceways.

**CAB INTERIOR UPHOLSTERY**

The cab interior upholstery will be 36 oz dark silver gray vinyl.

**CAB INTERIOR PAINT**

The cab interior metal surfaces, excluding the rear heater panels, will be painted fire smoke gray, vinyl texture paint.

The rear heater panels will be painted black, vinyl textured paint.

**CAB FLOOR**

The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

**DEFROST/AIR CONDITIONING SYSTEM**

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

**Cab Defroster**

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

- One (1) adjustable will be directed towards the left side cab window
- One (1) adjustable will be directed towards the right side cab window
- Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

**Cab/Crew Auxiliary Heater**

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat riser with a dual scroll blower. An aluminum plenum incorporated into the cab structure to be used to transfer heat to the forward positions.

**Air Conditioning**

A condenser will be a 59,644 BTU output that meets and exceeds the performance specification will be mounted on the radiator.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

**Climate Control**

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS



The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

The system controller will be located within panel position #12.

**Gravity Drain Tubes**

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

**SUN VISORS**

Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

**GRAB HANDLES**

A black rubber covered grab handle will be mounted on the door post of the driver and officer's side cab door to assist in entering the cab. The grab handles will be securely mounted to the post area between the door and windshield.



GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**ENGINE COMPARTMENT LIGHTS**

There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised.

**ACCESS TO ENGINE DIPSTICKS**

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface.

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn latch will be provided on the access door.



**CAB SAFETY SYSTEM**

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

- A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.
- A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.
- A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event (with the exception of command chairs located in the command cab).

**Frontal Impact Protection**

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact

## GATE CITY FIRE DEPARTMENT SABER PUMPER SPECIFICATIONS

during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will deploy the following components in the event of a frontal or oblique impact event:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

### **Side Roll Protection**

The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system will deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

### **SEATING CAPACITY**

The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be six (6).

### **DRIVER SEAT**

A seat will be provided in the cab for the driver. The seat design will be a cam action type, with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have an adjustable reclining back. The seat back will be a high back style with side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**OFFICER SEAT**

A seat will be provided in the cab for the passenger. The seat will be a fixed type, with no suspension. For optimal comfort, the seat will be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat back will be an SCBA back style with 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt.

The seat will be furnished with a 3-point, shoulder type seat belt.

**RADIO COMPARTMENT**

A radio compartment will be provided under the officer's seat.

The inside compartment dimensions will be 14.00" wide x 7.50" high x 15.00" deep, with the back of the compartment angled up to match the cab structure.

A drop-down door with one (1) flush lift and turn latch will be provided for access.

The compartment will be constructed of smooth aluminum and painted to match the cab interior.

**REAR FACING DRIVER SIDE OUTBOARD SEAT**

There will be one (1) rear facing seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat back will be an SCBA back style with 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt.

The seat will be furnished with a 3-point, shoulder type seat belt.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**REAR FACING PASSENGER SIDE OUTBOARD SEAT**

There will be one (1) rear facing seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat back will be an SCBA back style with 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt.

The seat will be furnished with a 3-point, shoulder type seat belt.

**FORWARD FACING CENTER SEATS**

There will be two (2) forward facing seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat backs will be an SCBA style with 90 degree back. The SCBA cavity will be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- A seat safety system will be included. When activated, this system will pretension the seat belt.

The seats will be furnished with a 3-point, shoulder type seat belt.

**SEAT UPHOLSTERY**

All seat upholstery will be leather grain 36 oz dark silver gray vinyl resistant to oil, grease and mildew. The cab and tiller cab (if applicable) will have six (6) seating positions.

**AIR BOTTLE HOLDERS**

All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.

There will be a quantity of five (5) SCBA brackets.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**SEAT BELTS**

All cab and tiller cab (if applicable) seating positions will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of applicable NFPA and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will include height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

The 3-point shoulder type belts will also include the ReadyReach® D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

Any flip up seats will include a 3-point shoulder type belts only.

To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

**HELMET STORAGE PROVIDED BY FIRE DEPARTMENT**

NFPA 1900, 2024 edition, section 11.1.8.4.1 and CAN/ULC 515:2024 edition, section 5.2, requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

**CAB DOME LIGHTS**

There will be four (4) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches and the lens switch.

The color LED's will be controlled by the lens switch.

All dome lights on the apparatus will be illuminated per the current edition of applicable NFPA standards per seating position.

**HAND HELD LIGHT**

There will be four (4) Streamlight, Fire Vulcan, Model #44451, hand lights provided with a vehicle mount with 12VDC direct wire charging rack and quick release buckle strap mounted tbd.

Each light housing will be orange in color and be provided with a C4, LED and two (2) "ultra bright blue tail light LEDs". The tail light LEDs will have a dual mode of blinking or steady.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**CAB INSTRUMENTATION**

The cab instrument panel will include gauges, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.

**Gauges**

The gauge panel will include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:

- Voltmeter gauge (volts):
  - Low volts (11.8 VDC)
    - Amber telltale light on indicator light display with steady tone alarm
  - High volts (15.5 VDC)
    - Amber telltale light on indicator light display with steady tone alarm
- Engine Tachometer (RPM)
- Speedometer MPH (Major Scale), KM/H (Minor Scale)
- Fuel level gauge (Empty - Full in fractions):
  - Low fuel (1/8 full)
    - Amber indicator light in gauge dial with steady tone alarm
- Engine Oil pressure Gauge (PSI):
  - Low oil pressure to activate engine warning lights and alarms
    - Red indicator light in gauge dial with steady tone alarm
- Front Air Pressure Gauges (PSI):
  - Low air pressure to activate warning lights and alarm
    - Red indicator light in gauge dial with steady tone alarm
- Rear Air Pressure Gauges (PSI):
  - Low air pressure to activate warning lights and alarm
    - Red indicator light in gauge dial with steady tone alarm
- Transmission Oil Temperature Gauge (Fahrenheit):
  - High transmission oil temperature activates warning lights and alarm
    - Amber indicator light in gauge dial with steady tone alarm
- Engine Coolant Temperature Gauge (Fahrenheit):
  - High engine temperature activates an engine warning light and alarms
    - Red indicator light in gauge dial with steady tone alarm
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):
  - Low fluid (1/8 full)
    - Amber indicator light in gauge dial

**Indicator Lamps**

To promote safety, the following telltale indicator lamps will be located on the instrument panel in clear view of the driver. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Air rest (air restriction)
- DPF (engine diesel particulate filter regeneration)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Regen inhibit (engine emissions regeneration inhibit) (where applicable)
- Side roll fault (where applicable)
- Front air bag fault (where applicable)
- Aux brake overheat (auxiliary brake overheat) (where applicable)
- The following red telltale lamps will be present:
  - Ladder rack down
  - Parking brake
  - Stop engine
- The following green telltale lamps will be present:
  - Left turn
  - Right turn
  - Battery on
  - Ignition
  - Aux brake (auxiliary brake engaged) (where applicable)
- The following blue telltale lamps will be present:
  - High beam

**Alarms**

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning condition is active.

**Indicator Lamp and Alarm Prove-Out**

A system will be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms will perform prove-out for 3 to 5 seconds when the ignition switch is moved to the on position with the battery switch on.

**Control Switches**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches will have backlit labels for low light applications.

Headlight/Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking and headlights. The second switch position will activate the parking lights. The third switch will activate the headlights.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Panel back lighting intensity control switch: A three (3)-position momentary rocker switch will be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times will allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will turn off and deactivate vehicle ignition. The second switch position will activate vehicle ignition and will perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position will temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position will terminate the alarm silence feature and reset function of cab alarm system.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

Hazard switch will be provided on the instrument panel or on the steering column.

Heater, defrost, and air conditioning control panel.

Turn signal arm: A self-canceling turn signal with high beam headlight controls.

Windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control.

Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

High idle engagement switch: A maintained rocker switch with integral indicator lamp will be provided. The switch will activate and deactivate the high idle function. The "OK To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

"OK To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

Emergency switching will be controlled by multiple individual warning light switches for various groups or areas of emergency warning lights. An Emergency Master switch provided on the instrument panel that enables or disables all individual warning light switches is included.

An additional "Emergency Master" button will be provided on the lower left hand corner of the gauge panel to allow convenient control of the "Emergency Master" system from inside the driver's door when standing on the ground.

## GATE CITY FIRE DEPARTMENT SABER PUMPER SPECIFICATIONS

### Custom Switch Panels

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the lower instrument console and up to six (6) switch panels in the overhead visor console. All switches have backlit labels for low light conditions.



### Diagnostic Panel

A diagnostic panel will be provided and accessible while standing on the ground. The panel will be located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port
- ABS Diagnostic Switch and Indicator - The switch and amber indicator will allow access to diagnostic mode and display of standard ABS system fault blink codes that may be generated by the ABS system

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- DPF REGEN (Diesel Particulate Filter Regeneration Switch) (where applicable) will be provided to request regeneration of the engine emission system. An amber indicator will be provided on top of the switch that will illuminate in a "CHECK ENGINE" condition
- REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) (where applicable) will be provided that will request that regeneration be temporarily prevented. A green indicator will be provided on top of the Regen Inhibit switch that will illuminate when the Regen Inhibit feature is active. Regen Inhibit will be disabled upon cycling of the ignition switch to the off state.

**AIR RESTRICTION INDICATOR**

A high air restriction warning indicator light (electronic) will be provided.

**"DO NOT MOVE APPARATUS" INDICATOR**

A Whelen, Model M2R flashing red indicator light with a chrome bezel, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

**OPEN DOOR INDICATOR LIGHT**

There will be two (2) Truck-Lite, Model 30286R, 2.00" round lights with red LED's provided next to the Do Not Move Truck Light per the following:

- One (1) light will be activated when the battery switch is on, the parking brake is released and any driver's side compartment door or rear compartment door is open or ajar. This light will be labeled Driver's Side Door Open or Ajar.
- One (1) light will be activated when the battery switch is on, the parking brake is released and the deck gun is not in a stowed position, any passenger's side compartment door is open or ajar. This light will be labeled Passenger's Side Door Open or Ajar.

**SWITCH PANELS**

The built-in switch panels will be located in the lower console or overhead console of the cab. Switches will be rocker type with an indicator light, of which is an integral part of the switch.

**WIPER CONTROL**

Wiper control will consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls. The control will be located on the left side of the center instrument panel.

The wipers will be interlocked to the parking brake. The wipers will terminate operation when the parking brake is set.

**CAB USB**

There will be two (2) USB terminations with a combination USB type A & C, wired to battery direct power, and provided per the following:

- One (1) within reach of the driver

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- One (1) within reach of the passenger

Battery direct loads cannot be load managed.

**SPARE CIRCUIT**

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

The positive wire will be connected directly to the battery power.

The negative wire will be connected to ground.

Wires will be capable of carrying 30 amps.

Power and ground will terminate behind officer seat.

Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels.

Wires will be protected to meet the NFPA Automotive Fire Apparatus standard.

Battery direct loads cannot be Load Managed

**SPARE CIRCUIT**

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be capable of carrying 15 amps.
- Power and ground will terminate officer side dash area.
- Termination will be with 15 amp, power point plug with rubber cover.
- Wires will be protected to meet the NFPA Automotive Fire Apparatus standard.

Battery direct loads cannot be Load Managed.

**INFORMATION CENTER**

There will be a LCD display integral to the cab gauge panel provided that will display the following information:

- Total distance
- Trip distance
- Total hours
- Trip hours
- PTO "A" hours
- PTO "B" hours

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**COLLISION MITIGATION**

There will be a HAAS Alert®, Model HA7 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA7 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degrees Celsius to 85 degrees Celsius.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA7 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA7 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA7 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

**VEHICLE DATA RECORDER**

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Internal clock syncs the time and date when a laptop is connected

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**Seat Belt Monitoring System**

A seat belt monitoring system (SBMS) will be provided. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm
- FAULT = Blue LED indicator illuminated

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

**RADIO ANTENNA MOUNT**

There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed one (1) each side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to behind the officer seat. A weatherproof cap will be installed on the mount.



**VEHICLE CAMERA SYSTEM**

There will be a color vehicle camera system provided with the following:

- One (1) Analog High Definition (AHD) black camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.

The camera image will be displayed on a 7.00" High Definition (HD) display located in view of the driver in the custom dash, per instrument panel layout. The display will include manual camera activation capability and audio from the active camera.

The following components will be included:

- One (1) HD700136DC, display
- One (1) 1080p AHD rear camera
- All necessary cables

**Camera Switcher**

A camera switcher is not required.

**RECESS REAR CAMERA**

A rear camera recess will be provided in the center at the rear.

**ELECTRICAL POWER CONTROL SYSTEM**

A compartment will be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment will contain circuit protection devices and power control devices. Power and signal protection and control components will be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Serviceable components will be readily accessible.

Circuit protection devices, which conform to SAE standard, will be utilized to protect each circuit. All circuit protection devices will be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 will be utilized to protect electronic equipment.

Power control relays and solenoids will have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.

Visual status indicators will be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical will be used.

**Voltage Monitor System**

A voltage monitor system will be provided to indicate the status of each battery system connected to the vehicle's electrical load. The monitor system will provide visual and audio warning when the system voltage is below optimum levels.

**Power and Ground Studs**

Spare circuits will be provided in the primary distribution center for two-way radio equipment.

The spare circuits will consist of the following:

- One (1) 12-volt DC, 30 amp battery direct spare
- One (1) 12-volt DC ground and un-fused switched battery stud located in or adjacent to the power distribution center

**EMI/RFI Protection**

The electrical system proposed will include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components will be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus proposed will have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor will be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.

EMI/RFI susceptibility will be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. The electrical system will be designed for full compatibility with low level control signals and high powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**ELECTRICAL**

All 12-volt electrical equipment installed by Pierce Manufacturing will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also, a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will have this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas will have silicon applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection.

Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

**BATTERY SYSTEM**

Six (6) 12 volt, Deka, Model 1231PMF, maintenance free group 31 batteries that include the following features, each, will be provided:

- 1000 CCA (cold cranking amps)
- 185 reserve capacity
- High cycle

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- Ref CA 1190 at 0 degrees Fahrenheit
- 185 minutes of reserve capacity
- SAE posts

**BATTERY SYSTEM**

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

**MASTER BATTERY SWITCH**

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

**BATTERY COMPARTMENTS**

Batteries will be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab and bolted directly to the chassis frame. The battery boxes will have reinforced sides. The battery compartments will be constructed of 0.188" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs will be of a non-corrosive material. All bolts and nuts will be stainless steel.

Heavy-duty, 2/0 gauge, color coded battery cables will be provided. Battery terminal connections will be coated with anti-corrosion compound.

Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound.

**JUMPER STUDS**

One (1) set of battery jumper studs with plastic color-coded covers will be included on the battery compartments.

**BATTERY CHARGER**

There will be an IOTA, Model DLS 75, 75 amp battery charger with IQ4 controller provided.

The battery charger will be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

The battery charger will be located in the cab behind the driver seat.

**AUTO EJECT FOR SHORELINE**

There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.

The shoreline inlet(s) will include red weatherproof flip up cover(s).

There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The shoreline(s) will be connected to the battery charger.

There will be a mating connector body supplied with the loose equipment.

There will be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

The shoreline receptacle will be located on the driver side of cab, above wheel.

### **ALTERNATOR**

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

### **ELECTRONIC LOAD MANAGEMENT**

An electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.

The ELM will monitor the vehicle's voltage while at the scene (parking brake applied). It will sequentially shut down individual electrical loads when the system voltage drops below a preset value. Two (2) separate electrical loads will be controlled by the load manager. The ELM will sequentially re-energize electrical loads as the system voltage recovers.

### **HEADLIGHTS WITH HALO FLASH**

There will be a HiViz part number FT-4X6-4KIT, that includes four (4) 4.00" high x 6.00" long rectangular LED lights with "Halo" parking lamp illumination around the outside of the lamps mounted in the front quad style housing. The headlights to include chrome bezels on each side of the cab grille:

- the outside lamp on each side will contain a part number FT-4X6-HL with low beam LEDs
- the inside lamp on each side will contain a part number FT-4X6-H with high beam LEDs
- the "Halo" around the headlights will be controlled by the headlight/parking light switch
- the lights will be controlled through the headlight switch

The "Halo" around the headlights will flash alternately from driver side to passenger side when emergency master switch is on, a "Halo Flash" switch in the cab is on, and the parking brake is released.

### **DIRECTIONAL LIGHTS**

There will be two (2) Whelen 600 series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The color of the lenses will be clear.

**INTERMEDIATE LIGHT**

There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

**CAB CLEARANCE/MARKER/ID LIGHTS**

There will be five (5) Truck-Lite, Model 35200Y, amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.

The lights will be mounted with no guard.

**FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS**

There will be two (2) Weldon, Model 9186-8580-29, amber LED lights installed front of the cab door, one (1) on each side of the cab.

The lights will be located approximately 11.25" lower than the center line of the headlight.

The lights will activate as marker lights with the headlight switch and directional lights with the corresponding directional circuit.

**REAR CLEARANCE/MARKER/ID LIGHTING**

There will be three (3) Truck-Lite®, Model 33050R, LED lights used as identification lights recessed and located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There will be two (2) Truck-Lite, Model 33050R, LED lights recessed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There will be two (2) Truck-Lite, Model 33050R, LED lights recessed on the side of the apparatus as marker lights as close to the rear as practical per the following:

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

**REAR FMVSS LIGHTING**

The rear stop/tail and directional lighting included in the rear tail light housing will include the following:

- Two (2) Whelen®, Model M62BTT, 4.30" high x 6.70" wide x 1.40" deep brake/tail lights with red LEDs
- Two (2) Whelen, Model M62T, 4.30" high x 6.70" wide x 1.40" deep directional lights with amber LEDs. The directional lights will be set to Steady On (Arrow) flash pattern.
- The lens color(s) to be clear.

There will be two (2) Whelen Model M62BU, LED backup lights provided in the tail light housing.

**LICENSE PLATE BRACKET**

One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.

One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

**LIGHTING BEZEL**

There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.

**BACK-UP ALARM**

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

**CAB PERIMETER SCENE LIGHTS**

There will be four (4) Amdor, Model AY-LB-12HW0\*\*, white LED strip lights provided, one (1) for each cab door that will meet NFPA ground lighting requirements.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

**PUMP HOUSE PERIMETER LIGHTS**

There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.

If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed.

The lights will be controlled by the same means as the body perimeter lights.

**BODY PERIMETER SCENE LIGHTS**

There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens, 20.00" long, white LED's, 12 volt DC lights provided at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights will be activated when the parking brake is applied, either directional light is activated, activating all side facing perimeter lights and the reverse signal activated, activating all the side facing perimeter lights.

**ADDITIONAL PERIMETER LIGHTS**

There will be six (6) Amdor® Model AY-LB-12HW020, 350 lumens, 20.00" long, with white LED's installed with one (1) light under each side of the front bumper spaced evenly, one (1) light under compartment LS1, one (1) light under compartment LS3, one (1) light under compartment RS1 and one (1) light under compartment RS2.

With the chassis battery switch energized, the lights will be activated by the same means as the body perimeter lights.

**STEP LIGHTS**

There will be four (4) white LED, step lights provided. One (1) step light will be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard.

These step lights will be actuated when the ignition switch is on and the parking brake is set.

All steps on the apparatus will be illuminated per the current edition of applicable NFPA standards.

**12 VOLT LIGHTING**

There will be a HiViz Model FT-B-54-2PKIT-\*, two (2) piece 2.49" high x 27.3" long (totaling 54.6") x 2.45" deep 12 volt DC dual light kit with 15,745 effective lumens and white LEDs provided, on the cab roof located, one (1) on the driver's side and one (1) on the passenger's side.

The painted parts of the light housing and brackets to be black.

The light will be activated by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

The light may be load managed when the parking brake is applied.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**12 VOLT LIGHTING**

There will be one (1) HiViz Model FT-MB-15-\*\*-\*, 2.06" high x 19.77" long x 2.45" deep, 5,544 effective lumens 12 volt DC light(s) with a combination of flood and spot optics and adjustable mounting bracket(s) installed on the cab LS under the crew cab warning light bar.

The painted parts of the light housing and brackets to be black.

The light(s) will be activated when the cab or crew cab doors on the driver's side are open and by the same control that has been selected for the driver's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

**12 VOLT LIGHTING**

There will be one (1) HiViz Model FT-MB-15-\*\*-\*, 2.06" high x 19.77" long x 2.45" deep, 5,544 effective lumens 12 volt DC light(s) with a combination of flood and spot optics and adjustable mounting bracket(s) installed on the cab LS under the crew cab warning light bar.

The painted parts of the light housing and brackets to be black.

The light(s) will be activated when the cab or crew cab doors on the passenger's side are open and by the same control that has been selected for the passenger's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

**12 VOLT LIGHTING**

There will one (1) HiViz Model FT-B-46-\*\*-\*, 13,306 lumens 2.56" high x 46.00" long x 2.45" deep 12 volt DC light(s) with white LEDs and with a combination of spot, and flood optics installed on the apparatus located, RS under the suction hose tray - centered.

The painted parts of the light housing and brackets to be black.

The light(s) will be controlled by a switch at the driver's side switch panel, by a switch at the left side pump panel, by a switch at the passenger's side switch panel and by a switch at the right side pump panel.

The light(s) may be load managed when the parking brake is applied.

**12 VOLT LIGHTING**

There will one (1) HiViz Model FT-B-46-\*\*-\*, 13,306 lumens 2.56" high x 46.00" long x 2.45" deep 12 volt DC light(s) with white LEDs and with a combination of spot, and flood optics installed on the apparatus located, LS - centered on catwalk under the suction hose tray.

The painted parts of the light housing and brackets to be black.

The light(s) will be controlled by a switch at the driver's side switch panel, by a switch at the left side pump panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**HOSE BED LIGHTS**

There will be white 12 volt DC LED light strips with stainless steel protective cover, provided to light the hose bed area. Hose Bed lights will meet the photometric levels listed in the current edition of applicable NFPA standards for Hose Bed lighting requirements.

- Light strip(s) will be installed along the upper edge of the left side of the hose bed.
- Light strip(s) will be installed along the upper edge of the right side of the hose bed.

The lights will be activated when the parking brake is applied.

**REAR SCENE LIGHTS**

There will be two (2) HiViz®, Model FT-MB-2.6-\*\*-\*, 4,435.2 effective lumens 2.82" high x 7.9" long x 3.31" deep 12 volt DC light(s) with white LEDs and with flood optics provided on the rear of the apparatus. These lights will be installed 99.00 above the ground.

The painted parts of the light housing and brackets to be black.

The lights will be controlled by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel, by a switch at the driver's side pump panel and by a cup switch at the driver's side rear bulkhead.

The light(s) may be load managed when the parking brake is applied.

**WALKING SURFACE LIGHTS**

There will be Two (2) Amdor®, Model AY-LB-12HW0\*\*, white 12 volt DC LED strip light(s) provided in the cargo area to illuminate the interior surface of the cargo area. Light(s) will be located on the front sheet of the body above the cargo area.

The light will be activated when the body step lights are on.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**WATER TANK**

Booster tank will have a capacity of 1000 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.

The tank will be designed to achieve a low hose bed. Tank design will be a stepped design with the forward section of the tank higher than the section of the tank that is below the hose bed.

Tank joints and seams will be nitrogen welded inside and out.

Tank will be baffled in accordance with the current edition of applicable NFPA standards.

Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.

Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding.

Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover.

All partitions will interlock and will be welded to the tank bottom and sides.

Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.

Tank top will be sufficiently supported to keep it rigid during fast filling conditions.

Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.

A sump that will be sized dependent on the tank to pump plumbing will be provided at the bottom of the water tank.

Sump will include a drain plug and the tank outlet.

Tank will be installed in a fabricated cradle assembly constructed of structural steel.

Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing.

Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.

Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.

Mounting system will be approved by the tank manufacturer.

Fill tower will be constructed of 0.50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Fill tower will be furnished with a 0.25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

**WATER TANK RESTRAINT**

A heavy-duty water tank restraint will be provided.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**HOSE BED**

The hose bed will be fabricated of 0.125"-5052 aluminum with a nominal 38,000 psi tensile strength.

The hose bed will be as low as practical.

Upper and rear edges of side panels will have a double break for rigidity.

Any area of the outboard hose bed wall that extends past the end of the hose bed floor will be covered with brushed stainless steel to prevent damage to painted surface when hose is removed.

Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.

A cross divider will be provided at the front of the hose bed before the tank transitions from the lower section to the upper section. The divider will run from the top of the side sheet down below the hose bed grating.

The hose bed floor will be 62" - 66" from the ground when the truck is fully loaded.

Hose bed will accommodate 400' 1.75"//200' 2.50"//1000' 5.00"// 200' 2.50"// 250' 1.75" MERCEDES HOSE.

**HOSE BED DIVIDER**

Four (4) hosebed dividers will be furnished for separating hose.

Each divider will be constructed of a 0.25" brushed aluminum sheet. Flat surfaces will be sanded for uniform appearance or constructed of brushed aluminum.

Divider will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

Divider will be held in place by tightening bolts, at each end.

Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

**HOSE BED DEFLECTOR**

A hose bed wind deflector will be provided at the front of the hose bed.

The cover will be 30.00" long x full width of the hose bed.

The cover will be constructed of .19" bright aluminum treadplate, hinged to the hose bed cross divider with a full length stainless steel piano hinge and resting on the hose bed dividers and side sheets. The cover will have a 1.00" upward "Lazy Bend" at the rear with additional bracing underneath for stiffening.

A chrome grab handle will be provided in the rear center of the cover to assist in opening and closing.

Pneumatic cylinders will be provided to hold the deflector in the open position.

The cover will be labeled "NO STEP" using 3.00" lettering.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Swell latches will be provided at the outboard rearward corners.

A single pair of black nylon Velcro® straps will be provided towards the rear at the top of the hose bed to retain hose within the hose bed.

**HOSE BED RESTRAINT, REAR**

The hose in the hose bed will be restrained by heavy duty 2.00" black nylon webbing with a 1.50" x 4.00" box pattern. The webbing will be installed at the rear of the hose bed with Velcro strap and footman loop at the top. At the bottom of the webbing, Velcro strap and footman loop will be provided.

**CROSS TUBE REINFORCEMENT, HOSE BED**

There will be one (1) rectangular cross tube mounted Rear and High above the hosebed. Reinforcement for the cross tube will be provided on each side sheet to support the tube.

The cross tube will be painted to match lower job color.

**RUNNING BOARDS**

Running boards will be fabricated of .125" bright aluminum treadplate.

Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure.

Running boards will be 14.75" deep and spaced .50" away from the pump panel. The front and rear outside corner of the running board will be finished with a 45 degree corner where it lines up with the body.

A splash guard will be provided above the running board treadplate.

**TAILBOARD**

The tailboard will also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.

The tailboard area will be 12.00" deep and full width of the body. The outboard sides of the tailboard will be angled at 45 degrees beginning at the point where the body meets the tailboard at the outboard edge angling rearward to the rear edge of the tailboard.

The exterior side will be flanged down and in for increased rigidity of tailboard structure.

**REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL**

The rear facing surfaces of the center rear wall will be smooth aluminum.

The bulkheads, the surface to the rear of the side body compartments, will be smooth and the same material as the body.

The rear wall will be flush.

**REAR TOW EYES**

Two (2) tow eyes, which are an integral part of the body mounting substructure, will be installed below the rear of the truck.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The tow eyes will be of adequate strength to allow the truck to be pulled from the eyes.

**REAR TOW BAR**

One (1) tow bar will be installed under the tailboard.

The tow bar assembly will be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle.

The tow bar design will have been tested and evaluated using finite element analysis techniques.

**HOSE TRAY**

Two (2) hose trays will be made free floating one (1) in each side running board.

The tray(s) will be flanged and drop in from the top. The ends will be tapered at the front and rear towards the center. No fasteners will be used to secure the tray(s).

Capacity of the tray will be 20.00' of 5.00" soft suction hose.

Rubber matting will be installed on the floor of the tray to provide proper ventilation. Drain holes will be provided.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**COMPARTMENTATION**

Body and compartments will be fabricated of 0.125", 5052-H32 aluminum.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.

Side compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.

The side compartment door opening will be framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle.

Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.

The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded.

Side compartment covers will be separate from the compartment tops.

Front facing compartment walls will be covered with bright aluminum treadplate.

All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.

**UNDERBODY SUPPORT SYSTEM**

Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load will be provided.

The backbone of the support system will be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.

Forward to the rear axle, the support system will include "L"-shaped support members bolted to the chassis frame rails. These welded support members will include vertical formed channels, horizontal structural channels, and support gussets. These parts extend from the chassis frame outward underneath the body.

Rearward to the rear axle, the body support system will include two rearward facing "L"-shaped support members bolted to the chassis frame rails. These support members will be connected to the two body supporting crossmembers forming a boxed foundation for the rear body support system.

Steel upper platform decks will be mounted on the top of these support members to create a floating substructure which will result in a 500 lb equipment support rating per lower compartment.

All structural components of this system will be made from high strength 50K steel plate material or structural steel componentry. The steel frames as well as the steel vertical angles will be treated with an epoxy E-coat or equivalent to provide resistance to corrosion and chemicals as standard.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The floating substructure will be separated from the horizontal members with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body.

Isolators will have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The neoprene isolators will be installed in a pattern which assimilates a three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.

A design with body compartments hanging on the chassis in an unsupported fashion will not be acceptable.

**AGGRESSIVE WALKING SURFACE**

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

**LOUVERS**

Louvers will be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they will be formed into the metal and not added to the compartment as a separate plate.

**TESTING OF BODY DESIGN**

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, strain gauging, and model analysis will be performed with special attention given to fatigue, life and structural integrity of the body and substructure.

Body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of actual testing techniques will be made available upon request.

**LEFT SIDE COMPARTMENTATION**

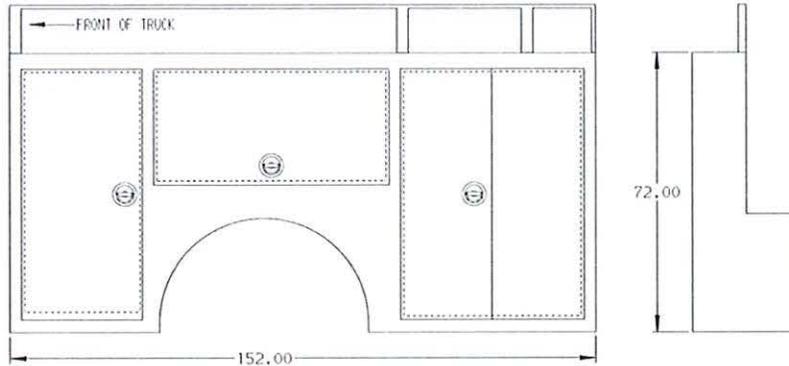
The left side compartmentation will consist of three (3) lap door compartments.

A full height, vertically hinged, single door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 34.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 28.63" wide x 61.88" high.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

A horizontally hinged, single lift-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening will be a minimum of 59.25" wide x 27.00" high.

A full height, vertically hinged, double door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 25.88" deep in the lower 26.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 43.50" wide x 62.88" high.



CLEAR DOOR OPENINGS		
LIFT OVER AXLE		
COMPARTMENT	HORIZONTAL	VERTICAL
Ahead of axle	28.63	61.88
Over axle	59.25	27.00
Behind axle	43.50	62.88

The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.

Each door will be furnished with a positive door holder.

The lift-up door will be furnished with two (2) gas-charged cylinders to assist in the opening of the door and to maintain the door in an open position. There will be a field adjustable, three-position bracket mounted on the vertical side door opening that will allow the door to be held open at 87°, 90°, or 93°.

Closing of the doors will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

**RIGHT SIDE COMPARTMENTATION**

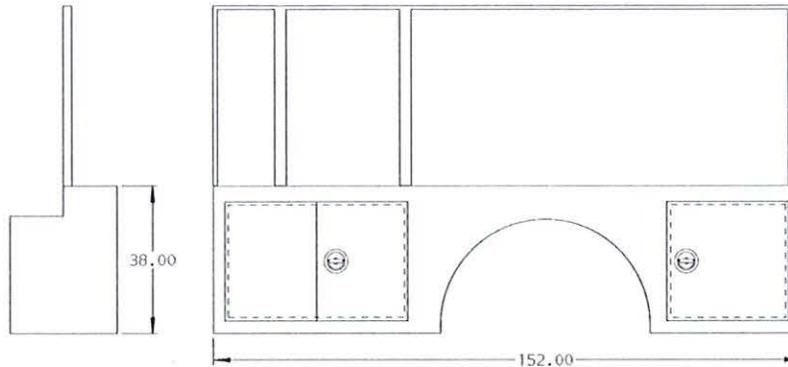
The right side compartmentation will consist of two (2) lap door compartments.

A vertically hinged, single door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 34.50" wide x 32.63" high x 25.88" deep in the lower 25.00" of

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 28.63" wide x 27.88" high.

A vertically hinged, double door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.75" wide x 33.63" high x 25.88" deep in the lower 26.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 43.50" wide x 28.88" high.



COMPARTMENT	CLEAR DOOR OPENINGS	
	HORIZONTAL	VERTICAL
Ahead of axle	28.63	27.88
Behind axle	43.50	28.88

The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.

Each door will be furnished with a positive door holder.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

**SIDE COMPARTMENT DOORS**

All hinged compartment doors will be lap style with double panel construction and will be a minimum of 1.50" thick. The doors will be made out of the same material as the body. To provide additional door strength a "C" section reinforcement will be installed between the outer and interior panels.

Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors will have polished stainless steel continuous hinge with a pin diameter of 0.25" that is bolted or screwed on with stainless steel fasteners.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

All door locking mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors will be latched with recessed, polished stainless steel "D" ring handles and FMVSS approved door latching mechanisms.

To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.

**REAR COMPARTMENTATION**

A roll-up door compartment above the rear tailboard will be provided.

The interior dimensions of this compartment will be 40.00" wide x 26.38" high x 25.88" deep. The clear door opening of this compartment will be a minimum of 33.25" wide x 16.63" high.

The interior height of the compartments will be measured from the compartment floor to the ceiling. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartment will be calculated with the compartment door closed.

A louvered, removable access panel will be furnished on the back wall of the compartment.

The rear compartment will be open into the rear side compartments.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

**ROLLUP REAR COMPARTMENT DOOR**

The rear compartment will have a rollup door.

The door will be double faced, aluminum construction, satin aluminum and manufactured by AMDOR™ brand rollup doors.

The door will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.

Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingress.

The door will be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Bottom panel flange of rollup door will be equipped with two (2) cut-outs to allow for easier access with gloved hands.

A polished stainless steel lift bar to be provided for each roll-up door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.

All injection molded rollup door wear components will be constructed of Type 6 Nylon.

The door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

**REVERSE HINGED DOOR**

The one (1) compartment door, located on the LS3 compartment(s), will have the hinge located opposite of the standard location.

**COMPARTMENT LIGHTING**

There will be two (2) compartments with Amdor, Model AY-9220, white 12 volt DC LED compartment light strips. The lights will be mounted with mechanical fasteners.

There will be two (2) strip lights installed vertically in each compartment opening per the latest NFPA requirements.

The lights will be activated when the battery switch is on and the respective compartment door is opened.

**MOUNTING TRACKS**

There will be five (5) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1 and RS2. These tracks will be installed vertically to support the adjustable shelf(s). The tracks will be painted to match the compartment interior.

**ADJUSTABLE SHELVES**

There will be three (3) shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in LS1 at the depth transition point, in LS1 in the upper third and in LS3 at the depth transition point.

**SLIDE-OUT ADJUSTABLE HEIGHT TRAY**

There will be one (1) slide-out tray provided.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Each tray will have 2.00" high sides and a minimum capacity rating of 250 lb in the extended position.

Each tray will be constructed of aluminum painted spatter gray.

Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location.

An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand.

The location(s) will be in LS3 centered between the floor and ceiling.

**SLIDE-OUT FLOOR MOUNTED TRAY**

There will be three (3) floor mounted slide-out tray(s) with 2.00" sides provided LS1, RS1 & RS2. Each tray will be rated for up to 500 lb in the extended position. The tray(s) will be constructed of a minimum 0.13" aluminum. The finish will be painted spatter gray.

The tray(s) will be designed for maximum compartment width and depth.

Slides will be equipped with ball bearings for ease of operation and years of dependable service. The slides will be located on the sides of the tray so that the tray can be located as close to the compartment floor as possible.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

**SWING OUT TOOLBOARD**

A swing out aluminum toolboard will be provided.

It will be a minimum of 0.188" thick with .281" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a pivoting device at the front of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load will be 400 lb.

The board will have positive lock in the stowed and extended position.

The board will have a D-ring handle to secure it in the stowed position.

The board will be mounted on adjustable tracks from front to back within the compartment.

One (1) toolboard(s) will be provided. The toolboard(s) will be spatter gray painted and installed LS2 full height and width.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**EQUIPMENT MOUNTING SYSTEM**

Pac Trac equipment mounting system will be installed on the back wall of one (1) compartment(s), upper section in LS3, LS2 & LS1.

**RUB RAIL**

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

**BODY FENDER CROWNS**

Polished stainless steel fender crowns will be provided around the rear wheel openings with a dielectric barrier will be provided between the fender crown and the fender sheet metal to prevent corrosion.

The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting will be provided between the body and crown.

**BODY FENDER LINER**

A aluminum painted to match the lower body color fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.

**HARD SUCTION HOSE**

Two (2) lengths of 6.00" Kochek Fire Grade clear corrugated hard suction hose, reinforced with a black spiral helix, 10' in length, will be provided. The hose will be equipped with a long handle female coupling on one (1) end and a rocker lug male coupling on the other end. Couplings will be black anodized hard coated aluminum.

**HOSE TROUGH**

One (1) trough for a hard suction hose will be installed on the top of the compartment, on the left side.

The trough will be constructed of aluminum, V-shaped and have chrome plated, quarter turn, spring loaded clamps.

**HARD SUCTION HOSE TROUGH, ADDITIONAL**

An additional hose trough will be provided and installed on the right side above the ladders of the apparatus. The hose trough material will be aluminum painted job color.

**HANDRAILS**

The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Handrails will be provided to meet current edition of applicable NFPA standards. The handrails will be installed as noted on the sales drawing.

**HANDRAILS**

One (1) vertical handrail will be located on each rear beavertail.

**HANDRAIL**

Two (2) horizontal knurled aluminum handrails will be provided above the hose bed at the rear of the apparatus. The handrails will be mounted to a cross tube provided at the rear of the hosebed.

**AIR BOTTLE STORAGE (DOUBLE)**

A quantity of four (4) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, will be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels, on the right side forward of the rear wheels and on the right side rearward of the rear wheels. A brushed stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, "W" shaped insert formed of composite materials will be provided.

**EXTENSION LADDER**

There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.

**ROOF LADDER**

There will be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.

**LADDER BRACKETS**

The ladders will be installed on the right side of the hose body in lined brackets and held in place by chrome plated, quarter-turn spring loaded clamps. The clamps will be such that when the roof ladder is removed, the clamps can be moved a half turn to hold the extension ladder in place. The ladder brackets will be adjustable up and down.

**FOLDING LADDER**

One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder will be installed.

**FOLDING LADDER STORAGE**

One (1) folding ladder will be stored behind the ladders on the side sheet, in a painted stainless steel box-shaped trough.

One (1) strap will be provided at the rear of the trough to secure the folding ladder in the trough.

**PIKE POLE PROVIDED BY FIRE DEPARTMENT**

The pike poles are not on the apparatus as manufactured. The fire department will provide and mount the pike poles.

There will be one (1) pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 10' pike pole.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**PIKE POLE STORAGE**

Two (2) pike poles, 8' or longer, will be provided with a 1.38" notch, to accommodate a New York style pike polepainted aluminum and located behind the ladders on the right side.

**6' PIKE POLE PROVIDED BY FIRE DEPARTMENT**

The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike poles.

There will be one (1) 6' pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 6' New York pike pole.

**FOLDING STEPS FRONT OF BODY**

Signature 4 model 102189-21 folding steps will be provided full height on the left side body compartments to provide access to the cargo bed. Steps will be spaced evenly on the sales drawing. Actual quantity may vary due to pump panel interferences but will meet the NFPA required maximum stepping height.

The steps will incorporate an LED light to illuminate the stepping surface.

The steps can be used as a hand hold with one opening wide enough for a gloved hand.

**REAR FOLDING STEPS**

Bright finished, non-skid Signature 4 brand folding steps will be provided at the rear. Each step will incorporate an LED light to illuminate the stepping surface. The steps can be used as a hand hold with one opening wide enough for a gloved hand.

Two (2) additional folding steps will be located two (2) on the right side rear bulkhead. The step(s) will be bright finished, non-skid with a chrome finish. Each step will incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with one opening wide enough for a gloved hand.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**PUMP COMPARTMENT**

The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment will be constructed of the same material as the body compartmentation.

The pump compartment substructure will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.

The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.

Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.

**PUMP MOUNTING**

Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.

**LEFT SIDE PUMP CONTROL PANELS**

All pump controls and gauges will be located at the left side of the apparatus and properly identified.

Layout of the pump control panel will be ergonomically efficient and systematically organized.

The pump operator's control panel will be removable in two (2) main sections for ease of maintenance:

The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges.

The lower section of the panel will contain all inlets, outlets, and drains.

All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.

**IDENTIFICATION TAGS**

The identification tag for each valve control will be recessed in the face of the tee handle.

All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag.

All remaining identification tags will be mounted on the pump panel in chrome plated bezels.

The pump panel on the right side will be removable with lift and turn type fasteners.

Trim rings will be installed around all inlets and outlets.

The trim rings for the side discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

### **PUMP**

Fire pump will be a Waterous CX, 1500 gpm, single (1) stage centrifugal type. The pump will be an end suction, pedestal mount, single inlet type.

Pump will be the class "A" type.

Pump will deliver the percentage of rated discharge at pressures indicated below:

- 100 percent of rated capacity at 150 psi net pump pressure.
- 70 percent of rated capacity at 200 psi net pump pressure.
- 50 percent of rated capacity at 250 psi net pump pressure.

Pump body will be close-grained gray iron, bronze fitted.

Impeller shaft will be stainless steel, accurately ground to size. It will be supported by oil or grease lubricated, anti-friction ball bearings for rigid precise support.

Bearings will be protected from water and sediment by suitable stuffing boxes, slinger rings, and oil seals. No special or sleeve type bearings will be used.

Pump will be equipped with a self-adjusting, maintenance-free, mechanical shaft seal.

The mechanical seal will consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring will press against a highly polished stainless steel stationary ring that is sealed within the pump body.

In addition, a throttling ring will be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance will not deteriorate, nor will the pump lose prime, while drafting if the seal fails during pump operation.

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

### **PUMP TRANSMISSION**

The pump transmission will be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump will be through a high strength Morse HY-VO silent drive chain. By using a chain

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

rather than gears, 50 percent of the sprocket will be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.

Drive shafts will be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case will be designed to eliminate the need for water cooling.

**PUMPING MODE**

An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping only.

**AIR PUMP SHIFT**

Pump shift engagement will be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control will also be located on the left side pump panel.

Two (2) indicator lights will be provided adjacent to the pump shift inside the cab. One (1) green light will indicate the pump shift has been completed and be labeled "pump engaged". The second green light will indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump".

The pump shift will be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.

The pump shift control in the cab will be illuminated to meet NFPA requirements.

**TRANSMISSION LOCK-UP**

The direct gear transmission lock-up for the fire pump operation will engage automatically when the pump shift control in the cab is activated.

**AUXILIARY COOLING SYSTEM**

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be a separate unit. It will be installed in the pump or engine compartment with the control located on the pump operator's control panel. The exchanger will be plumbed to the master drain valve.

**INTAKE RELIEF VALVE - PUMP**

One (1) Elkhart Style 40 relief valve(s) will be installed on the suction side of the pump preset at 125 psig.

The relief valve(s) will have a working range of 75 psi to 250 psi.

The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

The relief valve pressure control will be located behind the right side pump panel with a stainless steel access door.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**PRESSURE CONTROLLER**

A FRC Pump Boss 500 electronic pressure controller with one (1) 600 PSI transducer on the pump discharge will be provided. All readouts will be standard PSI.

When a single 300 psi or single 600 psi pressure transducer is selected the transducer is installed in the discharge side of the water pump. The transducer continuously monitors pump pressure sending a signal to the electronic pressure controller.

When a dual 600 psi pressure transducer is selected the transducer are installed in the discharge side and intake side of the water pump. The discharge transducer continuously monitors pump pressure sending a signal to the electronic pressure controller. The intake transducer continuously monitors the pump intake sending a signal to the electronic pressure controller.

The pressure controller can be used in two (2) modes of operation, RPM mode and pressure modes. The controller will be programmed to turn on/default to Pressure Setting mode.

In RPM mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller will maintain the set engine speed, regardless of engine load (within engine operation capabilities).

In pressure mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow.

A 2.00" diameter throttle control knob with no mechanical stops, a serrated grip, and a red idle push button in the center will be a integrated/part of the pressure controller. The throttle control knob will be programmed for Clockwise rotation to increase engine speed.

Individual LED indicators for ok to pump, throttle ready, pressure mode and rpm mode will be located on the pressure controller for easy viewing.

Safety features include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

An additional audible alarm will NOT BE provided.

The pressure controller screen will be LCD. The LCD screen and LED intensity will be automatically adjust for day and nighttime operation. The LCD screen intensity can also be manually adjusted if needed.

The following information will be provided/displayed on the LCD screen:

- Engine RPM
- Check engine and stop engine warning indicators
- Engine oil pressure
- Engine coolant temperature
- Transmission Temp
- Battery voltage

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- Operating mode (RPM or pressure)
- Pressure or RPM setting

On screen messaging show diagnostic and warning messages as they occur. It will show apparatus information, stored data, and program options when selected by the operator. It will monitor inputs outputs and support audible and visual warning alarms for the following conditions:

- High battery voltage
- Low battery voltage/engine off
- Low battery voltage/engine running
- High water pump temperature
- Low engine oil pressure
- High engine coolant temperature
- No engine response (visual alarm only)

The pressure controller will store the accumulated operating hours for the pump and engine. These items are to be displayed within the pressure controller menu.

The pressure controller will include a USB port on the back of the controller for easy software upgrades if needed.

#### **PRIMING PUMP**

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of applicable NFPA standards.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction.

One (1) priming control will open the priming valve and start the pump primer.

#### **PUMP MANUALS**

There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.

#### **PLUMBING, STAINLESS STEEL AND HOSE**

All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

Plumbing manifold bodies will be ductile cast iron or stainless steel.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.

**MAIN PUMP INLETS**

A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

**SHORT SUCTION TUBE(S)**

The suction tube(s) on the water pump will have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.

**MAIN PUMP INLET CAP**

The main pump inlets will have National Standard Threads with a long handle chrome cap.

The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.



**VALVES**

All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a **ten (10) year** warranty.

The location of the valve for the two (2) inlets will be recessed behind the pump panel.

**INLET CONTROL**

The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.

**LEFT SIDE INLET**

There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

**RIGHT SIDE INLET**

There will be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**FRONT INLET**

A 6.00" inlet front inlet that terminates on top of the right side bumper extension will be provided.

The plumbing will consist of 5.00" black iron pipe and a 5.00" Jamesbury butterfly valve. Only radius elbows will be used in the piping, no mitered joints.

Drains will be furnished in all the low points of piping and have .75" valves with T swing handle.

Bleeder valves will be located near the threaded connection and the valve control.

Die cast zinc screens will be provided at the front inlet connection.

**FRONT INLET CONTROL**

The front inlet will be gated with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve or an indicator will be provided to show when the valve is closed.

There will be an electric valve controller provided. The control will be momentary to allow the valve to be gated for ease of operation. Indicator lights will be provided to show if the valve is open or closed.

**FRONT INLET INTAKE RELIEF VALVE**

An Elkhart Brass Style 40 intake pressure relief valve will be provided on the inlet side of the valve preset at 125 psig.

The pressure relief valve will be adjustable from 75 to 250 psi.

The outlet will be 2.50" National Standard hose thread and terminate below the frame rails and will have a "do not cap" warning tag near the discharge outlet.

**FRONT INLET ELBOW**

The front inlet will have a 6.00" inlet elbow with swivel, terminating with Male National Standard Hose Thread.

The swivel will be Chrome.

A petcock/snubber style of bleeder will be provided on the front inlet elbow.

**FRONT INLET CAP**

The front inlet will have National Standard hose threads with a long handle cap.

The cap will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

**INLET BLEEDER VALVE**

A 0.75" bleeder valve will be provided for each side gated inlet.

The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

The water discharged by the bleeders will be routed below the chassis frame rails.

**TANK TO PUMP**

The booster tank will be connected to the intake side of the pump with stainless steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

**TANK REFILL**

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

**DISCHARGE OUTLET CONTROLS**

The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve.

If a handwheel control valve is used, the control will be a minimum of a 3.90" diameter stainless steel handwheel with a dial position indicator built into the center of the handwheel.

Any 3.00 inch or larger discharge valve will be a slow-operating valve to meet current edition of applicable NFPA standards.

**LEFT SIDE DISCHARGE OUTLETS**

Two (2) discharge outlets with a 2.50" valve will be provided on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

**LEFT SIDE OUTLET ELBOWS**

The 2.50" discharge outlets located on the left side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

**RIGHT SIDE DISCHARGE OUTLET**

One (1) discharge outlet with a 2.50" valve will be provided on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**RIGHT SIDE OUTLET ELBOWS**

The 2.50" discharge outlets located on the right side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

**LARGE DIAMETER DISCHARGE OUTLET**

There will be an Akron 8800 4.00" flat ball valve with 4.00" plumbing terminating with a 4.00" MNST chrome adapter on the right side pump panel.

The valve will be controlled with a(n) Pierce large handwheel with indicator located at the pump operator's panel.

**LARGE DIAMETER OUTLET ELBOWS**

The 4.00" outlet(s) will be furnished with one (1) 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.

**FRONT DISCHARGE OUTLET**

There will be one (1) 2.50" discharge outlet piped to the front of the apparatus and located on the top of the left side of the front bumper.

Plumbing will consist of 2.50" piping and flexible hose with a 2.50" full flow valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 2.50" NST with 90 degree stainless steel swivel.

There will be T swing handle drains provided at all low points of the piping.

**REAR DISCHARGE OUTLET**

There will be Four (4) discharge outlets piped to the rear of the hose bed, two (2) on the left side and two (2) on the right side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

**REAR OUTLET ELBOWS**

The 2.50" discharge outlets located at the rear of the apparatus will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

**DISCHARGE CAPS/ INLET PLUGS**

Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

**OUTLET BLEEDER VALVE**

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.

The handles will be chrome plated and provide a visual indication of valve position.

The T swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to.

The water discharged by the bleeders will be routed below the chassis frame rails.

**DELUGE RISER**

A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be rigidly braced and installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel. The outlet will include an Akron valve with a handwheel control.

**TELESCOPIC PIPING**

The deluge riser piping will include a 12.00" Task Force Model XG12 Extend-A-Gun extension.

This extension will be telescopic to allow the deluge gun to be raised 12.00" increasing the range of operation.

A position sensor will be provided on the telescopic piping that will activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.

**MONITOR**

A customer/dealer supplied and installed make and model To be Determined by End Buyer monitor will be properly installed on the deluge riser.

The deluge riser Extend-a-Gun will have provisions for direct mounting a Task Force Tips CrossFire monitor.

**CROSSLAY HOSE BEDS**

Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay controls will be at the pump operator's panel.

The center crosslay dividers will be fabricated of 0.25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a brushed finish.

Vertical scuffplates constructed of polished stainless steel will be provided at the front and rear ends of the bed on each side of vehicle.

Crosslay bed flooring will consist of removable perforated brushed aluminum.

**CROSSLAY/DEADLAY HOSE RESTRAINT**

Elastic netting will be provided across the top and ends of two (2) crosslay/deadlay opening(s) to secure the hose during travel. The netting will be permanently attached at the top center of the crosslay/deadlay bed and removable on each end.

**LOWER CROSSLAY HEIGHT**

To provide a lower working and access height, the crosslays will be installed 8.00" lower than the standard or typical location.

**FOAM SYSTEM**

A foam system will not be required on this apparatus.

**PUMP PANEL CONFIGURATION**

The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.

**PUMP AND GAUGE PANEL**

The pump and gauge panels will be constructed of aluminum with a black vinyl finish. A polished aluminum trim molding will be provided around each panel.

**PUMP ACCESS**

**Right Side Panel**

The right side upper pump panel will be removable.

**Panel Fastener**

The removable panels will be secured with black swell latch.

The left side pump panels will be attached with screws.

The right side lower pump panel (drain bank) will be attached with screws.

**PUMP COMPARTMENT LIGHT**

There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the pump compartment.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Engine monitoring graduated LED indicators will be incorporated with the pressure controller.

Also provided at the pump panel will be the following:

- Master Pump Drain Control

**THROTTLE READY GREEN INDICATOR LIGHT**

There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.

**OK TO PUMP INDICATOR LIGHT**

There will be a green indicator light installed on the pump operators panel that is activated when the pump is in Ok To Pump mode.

**ANGLED GAUGE PANEL**

The pump master gauge panel will be mounted at an angle downward to improve visibility of the gauges.

**VERTICAL TREADPLATE STEP CONNECTOR**

A vertical piece of aluminum treadplate material will be provided between the upper and lower step shields to connect the steps together.

one (1) will be provided for the step shields located Per Engineering.

**VACUUM AND PRESSURE GAUGES**

The pump vacuum and pressure gauges will be liquid filled and manufactured by Innovative Controls.

The gauges will be a minimum of 6.00" in diameter and will have white faces with black markings, with a pressure range of 30.00" 0-400 psi.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One (1) will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and polished stainless steel plugs. They will be marked with a label.

**PRESSURE GAUGES**

The individual "line" pressure gauges for the discharges will be interlube filled and manufactured by Class 1©.

The gauges will be a minimum of 3.00" in diameter and will have white faces with black markings.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

Gauges will have a pressure rating of 0-400 psi.

The individual pressure gauge will be installed as close to the outlet control as practical.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

**WATER LEVEL GAUGE**

There will be an electronic water level gauge provided on the operator's panel that registers water level by means of five (5) colored LED lights. The lights will be durable, ultra-bright five (5) LED design viewable through 180 degrees. The water level indicators will be as follows:

- 100 percent = Green
- 75 percent = Yellow
- 50 percent = Yellow
- 25 percent = Yellow
- Refill = Red

The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the water tank is empty.

The level measurement will be based on the sensing of head pressure of the fluid in the tank.

The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from water and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.

The main water level gauge will be powered with battery switch.

There will be a Hale part number 106877, 4-light driver module included with this installation to power additional water level gauges.

The remote level lights will be energized when ignition switch and parking brake is applied.

**WATER LEVEL GAUGE**

There will be three (3) additional water level indicator(s), a Whelen®, Model PSTANK2, LED module with chrome housing, installed one (1) each side rearward of crew cab doors and one (1) on rear body bulkhead.

This light module(s) will include four (4) colored levels and will function as follows:

- First, the green light module indicates a full water level.
- Second, the blue light module indicates a water level above 3/4 full.
- Third, an amber light module indicates a water level above 1/2 full.
- Last, a red light module indicates a water level above 1/4 full.

The light module will be steady burning when the water level is above the 1/4 full mark.

The light module will flash all green indicating the water level is empty.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

This light module will be activated when the ignition switch is activated.

The flash rate will be determined by the main water level tank sensor.

**STEP/LIGHT SHIELD**

There will be an aluminum treadplate stepping surface no less than 8.00" deep and properly reinforced to support a man's weight, installed over the pump operator's panel.

- There will be 12 volt DC white LED lights installed under the step to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.
- One (1) pump panel light will come on when the pump is in ok to pump mode.

The switch panel will be lit when the parking brake is set. This is to afford the operator illumination when first approaching the control panel.

All step lights on the apparatus will be illuminated per the current edition of applicable NFPA standards.

**ADDITIONAL LIGHT SHIELD**

An additional polished, 16 gauge stainless steel light shield will be provided above passenger's side pump panel.

- There will be 12 volt DC white LED lights installed under the light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**AIR HORN SYSTEM**

Two (2) Hadley®, eTone, chrome air horns will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.

**Air Horn Location**

The air horns will be located on each side of the bumper, inside of the frame rails.

**Air Horn Control**

The air horn(s) will be activated by the following:

- Left side foot switch
- Right side foot switch

**ELECTRONIC SIREN**

A Whelen, Model: 295SLSC1, electronic siren with a plug-in, detachable noise canceling microphone will be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

The electronic siren head will be located in switch panel # 7 area of the center dash switch panel.

The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.

**SPEAKER**

There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.

The speaker will be recessed in the left side of the front bumper, towards the outside.

**AUXILIARY MECHANICAL SIREN**

There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B will be chrome finish.

The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on.

The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.

The mechanical siren will be recessed in the front bumper in the center. The siren will be properly supported using the bumper framework.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**MECHANICAL SIREN CONTROL**

The mechanical siren will be activated by the following:

- Right side foot switch. The control to be available when the parking brake is released.
- Left side foot switch. The control to be available when the parking brake is released.

A momentary red switch will be included in the left side overhead switch panel to activate the siren brake.

**FRONT ZONE UPPER WARNING LIGHTS**

There will be three (3) Whelen® Freedom IV 21.50" lightbars mounted on the cab roof.

The driver's side lightbar will be installed at a 30 degree angle from the front of the cab. This lightbar will include the following:

- One (1) red flashing LED module in the outside end position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside front position.
- One (1) white flashing LED module in the inside front position.
- One (1) red flashing LED module in the inside front corner position.

The center lightbar will be installed parallel to the front of the cab. This lightbar will include the following:

- One (1) red flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side front position.
- One (1) red flashing LED module in the passenger's side front position.
- One (1) red flashing LED module in the passenger's side front corner position.

The passenger's side lightbar will be installed at a 30 degree angle from the front of the cab. This lightbar will include the following:

- One (1) red flashing LED module in the inside front corner position.
- One (1) white flashing LED module in the inside front position.
- One (1) red flashing LED module in the outside front position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside end position.

There will be clear lenses included on the lightbar.

There will be a switch in the cab on the switch panel to control the lightbars.

The white flashing LEDs will be disabled when the parking brake is applied.

The red flashing LED modules in the center lightbar and the red flashing LED module in front inside corners in the side lightbars may be load managed when the parking brake is applied.

**SIDE WARNING LIGHTS**

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

There will be two (2) 21.50" Whelen® Freedom™ IV lightbars mounted on the roof, one (1) on each side parallel to the sides of the cab, over the crew cab doors.

Each lightbar will include the following:

- One (1) red flashing LED module in the outside rear corner position.
- One (1) white flashing LED module in the outside rear position.
- One (1) red flashing LED module in the outside front position.
- One (1) white flashing LED module in the outside front corner position.

There will be clear lenses included on the lightbar.

There will be a switch in the cab on the switch panel to control the lightbars.

The white flashing warning lights will be disabled when the parking brake is applied.

The red flashing warning lights may be load managed when the parking brake is applied.

**LIGHTS, FRONT ZONE LOWER**

There will be four (4), Whelen® Model M6\*\* 4.32" high x 6.75" wide x 1.37" deep flashing LED warning lights installed on the cab face above the headlights in twin bezels.

- The left side outside warning light to include red LEDs
- The left side inside warning light to include white LEDs
- The right side inside warning light to include white LEDs
- The right side outside warning light to include red LEDs
- The warning light lens color(s) to be clear
- The housing to be polished and the trim shall be chrome

The lights may be controlled per the following:

- A switch on the cab instrument panel will control the lights
- White LEDs will be deactivated when the parking brake is applied
- Amber LEDs will be activated when the parking brake is applied
- Amber, blue green or red LEDs in the inside positions may be load managed when the parking brake is applied

**ROTO RAY LIGHT**

There will be one (1) Roto Ray, Model 4000W rotating warning light provided on the front of the cab mounted through the top section of the front grille.

This warning light will include the following:

- Two (2) PAR46 lights with red LEDs and clear lenses
- One (1) PAR46 light with white LEDs and a clear lens

There will be a switch in the cab on the switch panel to control this light.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The rotation motor and the warning lights will be deactivated when the parking brake is applied.

**SIDE ZONE LOWER LIGHTING**

There will be six (6) Whelen®, Model M6\*C, flashing LED warning lights with chrome trim installed per the following:

- Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.
- Two (2) lights, one (1) each side above the front wheels. The side middle lights to be red.
- Two (2) lights, one (1) each side above rear wheels. The side rear lights to be red.
- The lights will include clear lenses.

There will be a switch in the cab on the switch panel to control the lights.

**REAR ZONE LOWER LIGHTING**

There will be two (2) Whelen®, Model M6\*C, LED flashing warning lights located at the rear of the apparatus.

- The driver's side rear light to be red
- The passenger's side rear light to be red

Both lights will include a lens that is clear.

There will be a switch located in the cab on the switch panel to control the lights.

**REAR UPPER ZONE WARNING LIGHTS**

There will be two (2) Whelen, Model MCFLED2\* LED warning beacons provided at the rear of the truck, one (1) each side.

The color of the lights will be:

- The rear upper light(s) on the driver's side to be red.
- The rear upper light(s) on the passenger's side to be red.

All lenses will be clear.

There will be a switch located in the cab on the switch panel to control the beacons.

The left side rear warning light will be mounted on top of the compartmentation with all wiring totally enclosed. The clearance/marker light will be mounted to the side of the compartment ridge.

The right side rear warning light will be mounted on a low mount stainless steel bracket with all wiring totally enclosed. This brackets will also support the clearance/marker light.

The rear warning lights will be mounted just forward of the vertical beavertail flange in line with each other.

The rear deck lights will be mounted on the beavertail flange to keep the overall height as low as possible.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**NFPA LOOSE EQUIPMENT**

**NFPA Required Loose Equipment Provided by Fire Department**

The following loose equipment as outlined in NFPA 1900, 2024 edition, table 8.1 and CAN/ULC 515:2024 edition, section 5.2 will be provided by the fire department:

- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.

**NFPA Loose Equipment That Should be Considered**

The following loose equipment as outlined in NFPA 1900, 2024 edition, appendix table A.8.4 (a) and CAN/ULC 515:2024 edition, section 5.2 should be considered:

- 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.
- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) smooth bore or combination nozzle with shutoff and with 2.50" (65 mm) inlet that flows a minimum of 250 gpm (950 L/min).
- Four (4) SCBA apparatus
- Four (4) SCBA spare cylinders
- One (1) first aid kit.
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with national hose (NH) threads.
- One (1) double male 2.50" (65 mm) adapter with national hose (NH) threads.
- One (1) rubber mallet, for use on suction hose connections.
- Two (2) salvage covers each a minimum size of 12 ft × 18 ft (3.7 m × 5.5 m).
- One (1) automatic external defibrillator (AED).

**SOFT SUCTION HOSE**

There will be no soft suction hose provided.

**STRAINER PROVIDED BY FIRE DEPARTMENT**

NFPA 1900, 2024 edition, section 8.3 and CAN/ULC S515:2024 edition, section 5.2 requires a suction strainer when suction hose is provided.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The strainer is not on the apparatus as manufactured. The fire department will provide the suction strainer.

**DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

**WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

**FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT**

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

**PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT**

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**PAINT PROCESS**

The exterior custom cab and/or body painting procedure will consist of a seven (7) step finishing process. A commercial chassis paint process will follow similar processes as determined by the chassis manufacturer. The following procedure will be used by Pierce:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse will be applied to all metal surfaces.
3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective base coat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a critical aesthetic finish. The surfacer primer will be a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The surfacer primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The sealer primer is applied prior to the base coat in all areas that have not been previously primed with the surfacer primer. The sealer primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when top coated.
6. Base coat Paint - Two coats of a high performance, two component high solids polyurethane base coat will be applied. The Base coat will be applied to a thickness that will achieve the proper color match. The Base coat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of clear coat will be applied over the base coat color. The clear coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style doors will be clear coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

Our specifications are written to define cyclic corrosion testing, physical strengths, durability and minimum appearance requirements must be met in order for an exterior paint finish to be considered acceptable as a quality finish.

Each batch of base coat color will be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

**Environmental Impact**

Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99 percent efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98 percent. Water wash systems will be 99.97 percent efficient.
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes will be disposed of in an environmentally safe manner.
- Empty metal paint containers will be recycled to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Pierce will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with the state EPA rules and regulations.

**TWO-TONE CAB PAINT**

The cab will be painted two-tone with the upper section painted #101 black and the lower section painted #90 red. There will be a standard two-tone cab paint break provided.

There will be a standard cab shield provided.

**BODY PAINT**

The body will be painted to match the single cab #90 red paint color.

**PAINT CHASSIS FRAME ASSEMBLY**

The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components treated with epoxy E-coat protection prior to paint:

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

- Two (2) C-channel frame rails

Components that are included with the chassis frame assembly that will be painted not e-coated (unless otherwise stated in a secondary option) are:

- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

FILM TECHNICAL PROPERTIES		
PROPERTY	TEST METHOD	PERFORMANCE
Color	-	Black
Film Thickness	-	0.5 - 1.5 MILs
Gloss - 60 Degree	ASIM D523	65 - 85
Pencil Hardness	ASIM D3363	2H Minimum
Direct Impact	ASIM D2794	100 in. - lbs. Minimum
Reverse Impact	ASIM D2794	60 in. - lbs. Minimum
Crosshatch Adhesion	ASIM D3359	4B - 5B
Humidity	ASIM D1735	1000 Hours Minimum
Water Immersion	ASIM D870	250 Hours Minimum
Gravelometer	GM9508P	6 Minimum
Throwpower	GM9535P	12 - 15 in
<small>Cold rolled steel lab panels, Zinc Phosphate pretreatment, 0.6 mils average film thickness, cured 20 minutes @ 150°F</small>		
PROPERTY	SUBSTRATE PRETREATMENT	SALT SPRAY* 1000 HOURS
Corrosion Resistance	CES / Zinc Phos / Non-Chrome	1 - 2 mm
<small>*Salt Spray - ASTM B117, cold rolled steel lab panels cured 20 minutes @ 350°F (Average Total Salt Crust Weight)</small>		

The E-coat process will meet the technical properties shown.

**AXLE HUB PAINT**

All axle hubs will be painted to match primary job color.

**FRONT BUMPER COATING**

Safe-Stride® coating will be provided on the outside exterior of the top and bottom front bumper flanges. It will not be applied on the inside of the flanges.

The material will be black.

**COMPARTMENT INTERIOR PAINT**

The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

**REFLECTIVE STRIPES**

Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" black stripe at the top with a 1.00" gap then a 6.00" black stripe with a 1.00" gap and a 1.00" black stripe on the bottom.

The reflective band provided on the cab face will be at the headlight level.

**REAR CHEVRON STRIPING**

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, will be covered.

The colors will be red and fluorescent yellow green diamond grade.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

**INVERTED "V" CHEVRON STRIPING ON CAB AND CREW CAB DOORS**

There will be alternating chevron striping located on the inside of each cab and crew cab door.

The striping will consist of the following colors:

- The first color will be red diamond grade.
- The second color will be fluorescent yellow green diamond grade.

The size of the striping will be 4.00".

**LETTERING**

The lettering will be totally encapsulated between two (2) layers of clear vinyl.

**LETTERING**

Sixty-one (61) to eighty (80) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.

**MALTESE CROSS INSTALLATION**

There will be one (1) pair of maltese crosses, comprised of genuine gold leaf material, provided and installed crew cab doors.

**CAB GRILLE DESIGN**

A muted American flag with a thin red line design will be painted on the cab grille.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**ONE (1) YEAR MATERIAL AND WORKMANSHIP**

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

**ENGINE WARRANTY**

A Paccar five (5) year limited engine warranty will be provided. A limited warranty certificate is included with this proposal.

**STEERING GEAR WARRANTY**

A TRW **one (1)** year limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

**FIFTY (50) YEAR STRUCTURAL INTEGRITY**

The Pierce custom chassis frame only (does not include crossmembers) limited warranty certificate, WA0013, is included with this proposal.

**FRONT AXLE WARRANTY**

A two (2) year/250,000 mile Hendrickson Steertek front axle warranty will be provided.

**SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

A Meritor™ Axle 5 year limited warranty will be provided.

**ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

**TEN (10) YEAR STRUCTURAL INTEGRITY**

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

**TEN (10) YEAR PRO-RATED PAINT AND CORROSION**

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

**CAMERA SYSTEM WARRANTY**

A Pierce fifty four (54) month warranty will be provided for the camera system.

**COMPARTMENT LIGHT WARRANTY**

The compartment lights will not offer an extended warranty.

**TRANSMISSION WARRANTY**

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

**TRANSMISSION COOLER WARRANTY**

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be included with this proposal.

**WATER TANK WARRANTY**

A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.

**TEN (10) YEAR STRUCTURAL INTEGRITY**

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

**PUMP WARRANTY**

The Waterous pump will be provided with a seven (7) year material and workmanship limited warranty.

A copy of the warranty certificate will be included with this proposal.

**TEN (10) YEAR PUMP PLUMBING WARRANTY**

The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.

**TEN (10) YEAR PRO-RATED PAINT AND CORROSION**

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

**THREE (3) YEAR MATERIAL AND WORKMANSHIP**

The Pierce Goldstar gold leaf lamination limited warranty certificate, WA0018, is included with this proposal.

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

**VEHICLE STABILITY CERTIFICATION**

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1900, current edition, section 7.14, Vehicle Stability. The certification is included with this proposal.

**ENGINE INSTALLATION CERTIFICATION**

The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.

**POWER STEERING CERTIFICATION**

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification is included with this proposal.

**CAB INTEGRITY CERTIFICATION**

The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

**Side Impact**

The cab will be subjected to dynamic preload where a 14,320-lb moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

**Frontal Impact**

The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.

**Additional Frontal Impact**

The same cab will withstand a frontal impact of 65,098 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)

**Roof Crush**

The cab will be subjected to a roof crush force of 22,500 lb. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

**Additional Roof Crush**

The same cab will be subjected to a roof crush force of 110,000 lbs. (Four and a half times the load criteria of ECE 29)

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

**CAB DOOR DURABILITY CERTIFICATION**

Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

**WINDSHIELD WIPER DURABILITY CERTIFICATION**

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

**SEAT BELT ANCHOR STRENGTH**

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

**SEAT MOUNTING STRENGTH**

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

**STEPPING, STANDING & WALKING AREAS, SLIP RESISTANCE CERTIFICATION**

Pierce Manufacturing certifies that samples of the interior and exterior stepping, standing and walking surfaces used in the manufacture of Pierce custom and commercial fire apparatus will conform to the requirements of NFPA 1900, 2024 edition paragraphs 12.6.4.1 and 12.6.4.2 when tested using an English XL Variable Incidence Tribometer.

**PERFORMANCE CERTIFICATIONS**

**Cab Air Conditioning**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.

**Cab Defroster**

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The

GATE CITY FIRE DEPARTMENT  
SABER PUMPER SPECIFICATIONS

bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

**Cab Auxiliary Heater**

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.