



"One Team, One Town, One Family"

**Morenci City Offices
118 Orchard Street
Morenci, MI 49256
(517) 458-6828**

NOTICE TO BIDDERS

Purchase of Fire Truck

The City of Morenci is seeking sealed-bids starting on Tuesday, June 4, 2019, at its office at 118 Orchard Street, Morenci, Michigan 49256, until 5:45 p.m., Wednesday, June 19, 2019, for the purchase of a new fire truck.

Notes to Bidders

1. Please indicate clearly any substitutions contained in your bid and which alternates or combinations of it are included in your bid.
2. Bid should include the price of the fire truck on the enclosed bid specifications.
3. By placing a bid, the successful bidder agrees to hold harmless the City of Morenci from all liability associated with the refurbishment project.
4. Envelope(s) must be plainly marked BID, with the purpose and time of opening.
5. If you have any questions regarding the bid specifications, please contact the City of Morenci's Fire Chief at (567) 239-2396.
6. Bids will be publicly opened on at 5:45 p.m., Wednesday, June 19, 2019, at the City of Morenci offices. Bids should be itemized by listed item to accomplish with an overall bid price given.
7. Bids must be submitted on the bid sheet.

Bids must be received by 5:45 p.m., Wednesday, June 19, 2019, at 118 Orchard Street, Morenci, MI 49256.

The right is reserved by the City of Morenci to reject any and all bids or any part of same, to waive irregularities and / or informalities, and to make the award or acceptance in part or entirety as may appear to the best interest of the City of Morenci. Any dispute arising as to any bid shall be settled in the sole discretion of the Morenci City Council.

Michael S. Sessions
Morenci City Administrator / Clerk

Date Posted: _____

Date Published: _____

SPECIFICATIONS
FOR ONE
CUSTOM PUMPER
FOR THE
CITY OF MORENCI

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INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser a complete apparatus equipped as hereinafter specified. With a view of obtaining the best results and the most acceptable apparatus for service in the fire department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. The apparatus shall conform to the requirements of the current (at the time of bid) National Fire Protection Association Pamphlet #1901 for Motor Fire Apparatus unless otherwise specified in these specifications.

Bids shall only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of ten (10) years.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract must conform. Computer run-off sheets are not acceptable as descriptive literature.

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

STATEMENT OF EXCEPTIONS TO NFPA 1901

If, at the time of delivery, the apparatus manufacturer is not in compliance, a statement of exceptions must be provided as follows:

- The specific standard affected.
- A statement describing why the manufacturer is not in compliance.
- A description of the remedy, and who the responsible party is.

The document must be signed by an officer of the company, and an authorized agent of the purchaser. NO EXCEPTIONS

QUALITY AND WORKMANSHIP

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

	YES	NO
<p><u>INTENT OF SPECIFICATIONS</u></p> <p>It is the intent of these specifications to cover the furnishing and delivery to the purchaser a complete apparatus equipped as hereinafter specified. With a view of obtaining the best results and the most acceptable apparatus for service in the fire department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. The apparatus shall conform to the requirements of the current (at the time of bid) National Fire Protection Association Pamphlet #1901 for Motor Fire Apparatus unless otherwise specified in these specifications.</p> <p>Bids shall only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of ten (10) years.</p> <p>Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract must conform. Computer run-off sheets are not acceptable as descriptive literature.</p> <p>The specifications shall indicate size, type, model and make of all component parts and equipment.</p> <p><u>STATEMENT OF EXCEPTIONS TO NFPA 1901</u></p> <p>If, at the time of delivery, the apparatus manufacturer is not in compliance, a statement of exceptions must be provided as follows:</p> <ul style="list-style-type: none"> • The specific standard affected. • A statement describing why the manufacturer is not in compliance. • A description of the remedy, and who the responsible party is. <p>The document must be signed by an officer of the company, and an authorized agent of the purchaser. NO EXCEPTIONS</p> <p><u>QUALITY AND WORKMANSHIP</u></p> <p>The design of the apparatus must embody the latest approved automotive engineering practices.</p>		

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

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

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be documented with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall be approximately 66% on the rear axle. The successful bidder shall furnish a weight certification showing weight on the front and rear axle, and the total weight of the completed apparatus at the time of delivery.

- a. The apparatus must be capable of accelerating to 30 MPH from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed engine RPM.
- b. The service brakes shall be capable of stopping the fully loaded vehicle within 35 feet from a speed of 25 MPH on a level concrete highway.
- c. The apparatus, fully loaded, shall be capable of obtaining a speed of 50 MPH on a level highway with the engine not exceeding 95% of its governed RPM (full load).
- d. The apparatus shall be tested and approved by a qualified testing agency in accordance with their standard practices for pumping engines.
- e. The contractor shall furnish copies of the Pump Manufacturer's Certification of Hydrostatic Test (if applicable), the Engine Manufacturer's current Certified Brake Horsepower Curve and the Manufacturer's Record of Construction Details.

FAILURE TO MEET TESTS

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, a second trial may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Permission to keep and/or store the apparatus in any building owned or occupied by the purchaser shall not constitute acceptance of same.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be considered if they are deemed equal to or superior to the specifications, provided they are noted to the right

	YES	NO
<p>The workmanship must be the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility to various areas requiring periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.</p> <p>Construction must be rugged and ample safety factors must be provided to carry loads as specified and to meet both on and off road requirements and speed as set forth under "Performance Test and Requirements."</p> <p><u>PERFORMANCE TESTS AND REQUIREMENTS</u></p> <p>A road test shall be documented with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall be approximately 66% on the rear axle. The successful bidder shall furnish a weight certification showing weight on the front and rear axle, and the total weight of the completed apparatus at the time of delivery.</p> <ul style="list-style-type: none"> a. The apparatus must be capable of accelerating to 30 MPH from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed engine RPM. b. The service brakes shall be capable of stopping the fully loaded vehicle within 35 feet from a speed of 25 MPH on a level concrete highway. c. The apparatus, fully loaded, shall be capable of obtaining a speed of 50 MPH on a level highway with the engine not exceeding 95% of its governed RPM (full load). d. The apparatus shall be tested and approved by a qualified testing agency in accordance with their standard practices for pumping engines. e. The contractor shall furnish copies of the Pump Manufacturer's Certification of Hydrostatic Test (if applicable), the Engine Manufacturer's current Certified Brake Horsepower Curve and the Manufacturer's Record of Construction Details. <p><u>FAILURE TO MEET TESTS</u></p> <p>In the event the apparatus fails to meet the test requirements of these specifications on the first trial, a second trial may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Permission to keep and/or store the apparatus in any building owned or occupied by the purchaser shall not constitute acceptance of same.</p> <p><u>EXCEPTIONS TO SPECIFICATIONS</u></p> <p>The following specifications shall be strictly adhered to. Exceptions shall be considered if they are deemed equal to or superior to the specifications, provided they are noted to the right</p>		

and fully explained on a separate page entitled "EXCEPTIONS TO SPECIFICATIONS." Exceptions shall be listed by page and paragraph.

Failure to denote exceptions in the above manner shall result in immediate rejection of the proposal. In addition a general statement taking "TOTAL EXCEPTION" to the specifications shall result in immediate rejection of bid.

GENERAL CONSTRUCTION

The apparatus shall be designed and the equipment mounted with due consideration to distribution of load between the front and rear axles so that all specified equipment, including filled water tank, a full complement of personnel and fire hose shall be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the International Association of Fire Chiefs and National Fire Association (or American Insurance Association). Certified Laboratories certificate shall be submitted by the manufacturer. Weight of apparatus shall meet all federal axle load laws.

DELIVERY REQUIREMENTS

The apparatus shall be completely equipped as per these specifications upon arrival and on completion of the required tests shall be ready for immediate service in the fire department of the purchaser. Any and all alterations required at the scene of delivery to comply with these specifications must be done at the contractor's expense.

PURCHASER RIGHTS

The Purchaser reserves the right to accept or reject any bid. The purchaser also reserves the right to award in their best interest and reserves the right to waive any formalities.

U.S.A. MANUFACTURER

The entire apparatus shall be assembled within the borders of the Continental United States to insure more readily available parts (without added costs and delays caused by tariffs and customs) and service, as well as protecting the purchaser should legal action ever be required.

MANUFACTURER'S EXPERIENCE

Each manufacturer shall have been in business making similar apparatus for a minimum of seventy-five (75) years and must have had single ownership for more than fifty (50) years.

ELIMINATION OF DIVIDED RESPONSIBILITY

It is required that each bidder produce both the chassis and complete apparatus. To eliminate divided responsibility and service, the chassis and body must be manufactured by the same Company. Manufacturer shall state the number of years the Company has been producing

their own chassis and body. Manufacturer shall state compliance with the paragraph. NO EXCEPTIONS.

FAMA COMPLIANCE

Manufacturer must be a current member of the Fire Apparatus Manufacturer's Association.

FUTURE PURCHASES AND "TAG ON" ORDERS

The successful bidder shall accept "tag on" orders to this bid proposal for a period not to exceed three (3) years from the bid opening date. The successful bidder shall honor the priced quoted for a period of 90 days from the date of the bid opening. For the remainder of the year (275 days), the bidder shall agree to an economic price escalation of 1.5%. Future years beyond the initial first year shall have an economic price escalation of 3% as a normal course of business. Items outside the normal course shall include changes legislated by Federal, State or Local Governments that impact the cost to manufacture the truck. In addition, changes to NFPA 1901 that require additional cost shall be borne by the purchaser. These may include, but are not limited to changes that affect the major vendors of the fire apparatus industry such as pump manufacturer, seat manufacturer, electrical power supplies (generators) and power-train (engine & transmission).

The bidder shall honor the "tag on" order from any municipality within the United States or Canada.

CONFIGURATION OF "TAG ON" ORDERS

In many cases the entity wishing to "tag on" to an existing order may require their apparatus to be configured differently from the original proposed apparatus. The bidder shall allow changes to the configuration within good engineering guidelines. The changes will be subject to current pricing in effect at the time of order. For example, a different engine may be required. This shall be considered a "change order" and the purchase price shall be adjusted up or down depending on the current option price.

PROPOSAL DRAWING

A general layout drawing depicting the apparatus layout and appearance shall be provided with the bid. The drawing shall consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views. The drawing shall be a depiction of the actual apparatus proposed and not of a generic similar product.

APPROVAL DRAWING

After the award of bid and pre-construction conference, a detailed layout drawing depicting the apparatus layout and appearance including any changes agreed upon shall be provided for customer review and signature. The drawing will become part of the contract documents.

The drawing shall consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views.

WIRING SCHEMATIC

A CD containing wiring diagrams of the apparatus shall be provided at the time of delivery.

PRE-CONSTRUCTION CONFERENCE-(1)

After award of the contract, and prior to construction of the apparatus, a pre-construction conference shall be held at the facility of the manufacturer. A provision shall be provided in the bid price for all travel, food and lodging for up to four (4) members of the fire department.

INSPECTION TRIPS-(2)

Two (2) inspection trips shall be provided at the manufacturer's facility, prior to delivery of the completed apparatus. A provision shall be provided in the bid price for all travel, food and lodging for up to four (4) members of the fire department.

PERFORMANCE BOND

Within twenty (20) days of notification to the successful bidder by the purchaser, prior to any work commencing on the proposed apparatus, the successful bidder shall, at their own expense, obtain and submit to the purchasing entity a performance bond in the amount of 100% equal to the total contract price.

Additionally, each bidder must disclose the price/amount it pays for bonding, per \$1,000. This is to demonstrate the economic stability and credit worthiness of the bidder. NO EXCEPTIONS.

CUSTOM CHASSIS

A Severe Duty Cab and Chassis system shall be provided. The chassis shall be manufactured in the factory of the bidder. The chassis shall be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained and the type of service required. The cab and chassis system, shall be considered the bidders "Top of the Line".

There shall be no divided responsibility in the production of the apparatus.

SINGLE FRAME RAILS/SINGLE AXLE

The chassis frame shall be of a ladder type design utilizing industry accepted engineering best practices. The frame shall be specifically designed for fire apparatus use.

	YES	NO
<p>The drawing shall consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views.</p> <p><u>WIRING SCHEMATIC</u></p> <p>A CD containing wiring diagrams of the apparatus shall be provided at the time of delivery.</p> <p><u>PRE-CONSTRUCTION CONFERENCE-(1)</u></p> <p>After award of the contract, and prior to construction of the apparatus, a pre-construction conference shall be held at the facility of the manufacturer. A provision shall be provided in the bid price for all travel, food and lodging for up to four (4) members of the fire department.</p> <p><u>INSPECTION TRIPS-(2)</u></p> <p>Two (2) inspection trips shall be provided at the manufacturer's facility, prior to delivery of the completed apparatus. A provision shall be provided in the bid price for all travel, food and lodging for up to four (4) members of the fire department.</p> <p><u>PERFORMANCE BOND</u></p> <p>Within twenty (20) days of notification to the successful bidder by the purchaser, prior to any work commencing on the proposed apparatus, the successful bidder shall, at their own expense, obtain and submit to the purchasing entity a performance bond in the amount of 100% equal to the total contract price.</p> <p>Additionally, each bidder must disclose the price/amount it pays for bonding, per \$1,000. This is to demonstrate the economic stability and credit worthiness of the bidder. NO EXCEPTIONS.</p> <p><u>CUSTOM CHASSIS</u></p> <p>A Severe Duty Cab and Chassis system shall be provided. The chassis shall be manufactured in the factory of the bidder. The chassis shall be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained and the type of service required. The cab and chassis system, shall be considered the bidders "Top of the Line".</p> <p>There shall be no divided responsibility in the production of the apparatus.</p> <p><u>SINGLE FRAME RAILS/SINGLE AXLE</u></p> <p>The chassis frame shall be of a ladder type design utilizing industry accepted engineering best practices. The frame shall be specifically designed for fire apparatus use.</p>		

Each frame rail shall be constructed of two .375" thick-formed channels. The outer channel shall be 10.188" x 3.50" x .375". Inner reinforcements of 9.31" x 3.13" x .375" will span the front and rear suspension attachment locations. These inner reinforcements will spread the load between the suspension mounts.

Resistance to Bending Moment (RBM) at suspension mounts will be 3,498,000 in-lbs with a rail section modulus of 31.8 in.³

Resistance to Bending moment where only one rail is present will be 1,914,000 in-lbs with a rail section modulus of 17.4 in.³

Each rail is media blasted to remove scale, oil, and contaminants. This blasting also ensures paint adhesion. Each rail will be primed with Cathacoat 302HB, a high performance, two component, reinforced inorganic zinc-rich primer with proven cathodic protection of steel structures, prior to assembly.

The cross-members shall be constructed of minimum .375" formed channels and have formed gusseted ends at the frame rail attachment. Single axle rear suspensions will utilize 3 piece bolt assembled cross-members at each suspension hanger

.625 inch, grade 8 flange, Huck bolt fasteners shall be used on all permanently attached brackets to the frame to eliminate the need for bolt re-tightening. Additional hardware will be Grade 8 Zinc coated flange head locking fasteners.

A lifetime warranty shall be provided, per manufacturer's written statement.

FRONT TOW EYES, BELOW BUMPER

There shall be two front tow eyes with 3" diameter holes attached directly to the chassis frame, accessible below the front bumper.

TOW EYES, PAINTED FINISH

The front tow eyes shall be painted to match the color of the chassis frame.

REAR TOW EYES

There shall be two tow eyes attached directly to the chassis frame rail and shall be chromate acid etched for superior corrosion resistance and painted to match the chassis.

STEERING

The steering system shall be a TRW wheel to wheel steering system that is tested and certified by TRW, consisting of a heavy duty TRW/Ross Model TAS-85 power steering gear, TRW PS36 steering pump, miter box, drag links, and a thermostatic controlled fan cooled system (set point 185 deg. F to 170 deg. F). The steering gear shall be bolted to the frame at the cross-

member for steering linkage rigidity. Four (4) turns from lock to lock with an 18" diameter slip resistant rubber covered steering wheel. Steering column shall have six-position tilt and 2" telescopic adjustment. The cramp angle shall be 45 degrees with 315mm tires or 43 degrees with 425mm tires providing very tight turning ability.

DRIVELINE

The driveline shall consist of Spicer 1710 series dual grease fitting universal joints with "Half-Round" end yokes. The drive shaft shall be built with a heavy-duty steel tube 4.095" outside diameter x .180 wall thickness. The shafts shall be dynamically balanced prior to installation into the chassis. A splined slip joint shall be provided in each shaft assembly. Universal joints shall be extended life. There shall be two (2) Zerk fittings in each universal joint assembly so the joint can be greased without turning the shaft.

COLD WEATHER PACKAGE

The following items shall be provided for apparatus used in cold climates:

Auto-Eject

A Kussmaul Model 091-55-20-120 super electric auto-eject with weatherproof cover and power interrupt shall be provided and wired to the engine block heater.

Fuel/Water Separator

A Cummins approved FleetGuard FH230 Fuel Pro filter will be remote mounted to the Chassis frame rail.

12VDC Heater

12 Volt power will be added to the fuel filtration system to provide heat to ensure that cold weather starting will never be a problem.

Heat Enclosure

A heat enclosure will be installed that will trap hot air radiated from the exhaust system to warm the fire pump. The enclosure will have easily removable panels for warm weather operation. A covering above the pump will also be provided so warm air cannot escape freely.

Gauge Heater

A MC gauge heater and tapes will be provided for up to twelve (12) gauges.

Pump Compartment Heater

A heater will be provided to heat the in the pump compartment. The heater will use water from the water manifold located of the right side of the engine. The manifold will have a dedicated valve to turn the water on or off for maintenance or during warm weather conditions. Hot air radiated from the unit will be distributed through the pump compartment by a 12-volt fan activated by a switch located on the pump operator's panel.

ENGINE

Cummins Diesel L 9, 450 H.P. @ 2100 R.P.M., 1250 ft. lb. Torque @ 1400 R.P.M.

Displacement: 8.9 liter displacement.

Cylinders: 6

Bore: 4.49" (114mm)
Stroke: 5.69" (145mm)

AIR COMPRESSOR

The air compressor shall be an 18.7 CFM engine driven Wabco.

LUBE OIL

Lube oil cooler, and a full flow lube oil filter shall be provided.

STARTER

A 12-volt starter shall be provided, controlled by a switch on the left lower cab dash.

EXHAUST SYSTEM

The engine exhaust system shall include the following components:

Diesel Particulate Filter (DPF)

Diesel Oxidation Catalyst (DOC)

Diesel Exhaust Fluid (DEF)

Selective Catalytic Reduction Filter (SCR)

The SCR catalyst utilizes the DEF fluid, which consists of urea and purified water, to convert NOx into nitrogen and water. This will meet or exceed 2017 EPA emissions requirements.

The engine exhaust system shall be horizontal design constructed from heavy-duty truck components. The exhaust tubing shall be stainless steel to the DPF through to the SCR aluminized steel from the SCR to the exhaust tip. A heavy duty stainless steel bellows tube shall be used to isolate the exhaust system from the engine. The system shall be equipped with single canister consisting of a Diesel Oxidation Catalyst (DOC) and a Diesel Particulate Filter (DPF), and shall be mounted under the right side frame rail, meeting the specific engine manufacturer's specifications and current emission level requirements. The outlet shall be directed to the forward side of the rear wheels, exiting the right side with a heavy duty heat diffuser. The heat diffuser shall prevent the exhaust temperature from exceeding 851 deg. F during a regeneration cycle. A heat-absorbing sleeve shall be provided on the exhaust pipe in the engine compartment area to reduce the heat, protect the alternator, and also to protect personnel while servicing the engine compartment.

AFTER TREATMENT SYSTEM

To meet EPA requirements of Particulate output, a DPF (Diesel Particulate Filter) is used. To meet EPA requirements of Nitrous Oxide output an SCR (Selective Catalytic Reduction) system utilizing DEF (Diesel Exhaust Fluid) is used.

ON-BOARD DIAGNOSTIC (OBD) SYSTEM

<p>Bore: 4.49" (114mm) Stroke: 5.69" (145mm)</p> <p><u>AIR COMPRESSOR</u></p> <p>The air compressor shall be an 18.7 CFM engine driven Wabco.</p> <p><u>LUBE OIL</u></p> <p>Lube oil cooler, and a full flow lube oil filter shall be provided.</p> <p><u>STARTER</u></p> <p>A 12-volt starter shall be provided, controlled by a switch on the left lower cab dash.</p> <p><u>EXHAUST SYSTEM</u></p> <p>The engine exhaust system shall include the following components:</p> <p>Diesel Particulate Filter (DPF)</p> <p>Diesel Oxidation Catalyst (DOC)</p> <p>Diesel Exhaust Fluid (DEF)</p> <p>Selective Catalytic Reduction Filter (SCR)</p> <p>The SCR catalyst utilizes the DEF fluid, which consists of urea and purified water, to convert NOx into nitrogen and water. This will meet or exceed 2017 EPA emissions requirements.</p> <p>The engine exhaust system shall be horizontal design constructed from heavy-duty truck components. The exhaust tubing shall be stainless steel to the DPF through to the SCR aluminized steel from the SCR to the exhaust tip. A heavy duty stainless steel bellows tube shall be used to isolate the exhaust system from the engine. The system shall be equipped with single canister consisting of a Diesel Oxidation Catalyst (DOC) and a Diesel Particulate Filter (DPF), and shall be mounted under the right side frame rail, meeting the specific engine manufacturer's specifications and current emission level requirements. The outlet shall be directed to the forward side of the rear wheels, exiting the right side with a heavy duty heat diffuser. The heat diffuser shall prevent the exhaust temperature from exceeding 851 deg. F during a regeneration cycle. A heat-absorbing sleeve shall be provided on the exhaust pipe in the engine compartment area to reduce the heat, protect the alternator, and also to protect personnel while servicing the engine compartment.</p> <p><u>AFTER TREATMENT SYSTEM</u></p> <p>To meet EPA requirements of Particulate output, a DPF (Diesel Particulate Filter) is used. To meet EPA requirements of Nitrous Oxide output an SCR (Selective Catalytic Reduction) system utilizing DEF (Diesel Exhaust Fluid) is used.</p> <p><u>ON-BOARD DIAGNOSTIC (OBD) SYSTEM</u></p>		

The engine shall be equipped with an on-board diagnostic (OBD) system which shall monitor emissions-related engine systems and components and alert the operator of any malfunctions. The OBD system is designed to further enhance the engine and operating system by providing early detection of emission-related faults. The engine control unit (ECU) will manage smart sensors located throughout the engine and after-treatment system. The system shall monitor component verification and sensor operation. There shall be warning lights located in the dash instrument panel to alert the operator of a malfunction. A data port shall be provided under the driver's side dash for the purpose of code reading and troubleshooting. All communication shall be provided through the J1939 data link.

ENGINE WARRANTY

The engine shall have a five (5) year or 100,000 mile warranty and approval by Cummins Diesel for Full Engine Coverage Plan (RVF) – which is their most complete engine coverage plan, which includes EGR components installation in the chassis. There shall be no deductible for the first two years. A one hundred dollar deductible shall apply for service beginning the third year.

AIR CLEANER/INTAKE

The engine air intake and filter shall be designed in accordance with the engine manufacturer's recommendations. It shall be 99.9% effective in removing airborne contaminants when tested per the industry standard SAE J726 procedure and offer a dirt holding capacity of at least 3.0 gm/cfm of fine dust (tested per SAE J726) offering superior engine protection.

The air filter shall be located at the front of the apparatus and shall be at least 66" above the ground, to allow fording deep water in an emergency situation.

An ember separator shall be provided in the engine air intake meeting the requirements of NFPA 1901.

An Air Restriction warning light shall be provided and located on the cab dash.

PRIMARY FUEL FILTER/WATER SEPARATOR

A Cummins approved Fleetguard FS1090 fuel filter/water separator shall be remote mounted to the chassis frame rail.

SECONDARY FUEL FILTER

A Cummins approved Fleetguard FF63009 fuel filter will be remote mounted to the rear of the engine.

TRANSMISSION

The chassis shall be equipped with a Generation 5 Allison EVS3000 six (6) speed automatic transmission. It shall be programmed five (5) speed, sixth gear locked out, for fire apparatus vocation, in concert with the specified engine.

The transmission is communicated on the J-1939 through the communication port. The fifth gear shall be an overdrive ratio, permitting the vehicle to reach its top speed at the engine's governed speed. The dipstick is dipped in a rubber coating for ease in checking oil level when hot.

The chassis to transmission wiring harness shall utilize Metri-Pack 280 connectors with triple lip silicone seals and clip-type positive seal connections to protect electrical connections from contamination without the use of coatings.

Ratings: Max Input (HP) 450

Max Input (Torque) 1255 (lb ft)

Max Turbine (Torque) 1700 (lb ft)

Mechanical Ratios: 1st - 3.49:1

2nd - 1.86:1

3rd - 1.41:1

4th - 1.00:1

5th - 0.75:1

Reverse - -5.03:1

TRANSMISSION FLUID

The transmission shall come filled with an Allison approved Synthetic Transmission Fluid that meets the Allison TES-295 specification.

ENGINE BRAKE

The engine shall be equipped with a Jacobs compression engine brake. An "On/Off" switch shall be provided on the instrument panel within easy reach of the driver.

The engine brake shall interface with the Wabco ABS brake controller to prevent engine brake operations during adverse braking conditions.

A pump shift interlock circuit shall be provided to prevent the engine brake from activating during pumping operations.

The brake light shall activate when the engine brake is engaged.

TRANSMISSION COOLER

The apparatus transmission shall be equipped with a Liquid-To-Liquid remote mounted cooler with aluminum internal components. The cooler shall be encased in an aluminum housing and mounted to the outside of the officer's side frame rail for accessibility and ease of service.

TRANSMISSION SHIFTER

An Allison "Touch Pad" shift selector shall be mounted to the right of the driver on the engine cover accessible to the driver. The shift position indicator shall be indirectly lit for nighttime operation.

COOLING SYSTEM

The cooling system shall be designed to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the engine and transmission manufacturer's requirements, and EPA regulations.

The complete cooling system shall be mounted in a manner to isolate the system from vibration and stress. The individual cores shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress to the adjoining core(s).

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

RADIATOR

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

The radiator shall be equipped with a drain cock to drain the coolant for serviceability. The drain cock shall be located at the lowest point of the aluminum cooling system to maximize draining of the system.

CHARGE AIR COOLER

The charge air cooler shall be of a cross-flow design and constructed completely of aluminum with extruded tanks. The charge air cooler shall be bolted to the top of the radiator to allow a single depth core.

COOLANT

The cooling system shall be filled with a 50/50 mix. The coolant makeup shall contain ethylene glycol and de-ionized water to prevent the coolant from freezing to a temperature of -34 degrees F.

HOSES & CLAMPS

Silicone hoses shall be provided for all engine coolant lines.

All radiator hose clamps shall be spring loaded stainless steel constant torque hose clamps for all main hose connections to prevent leaks. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

FAN

The engine cooling system shall incorporate a heavy-duty composite 11- blade Z-series fan. It shall provide the highest cooling efficiently while producing the lowest amount of noise. This robust yet light-weight fan results in less wear and stress on motors and bearings.

A shroud and recirculation shield system shall be used to ensure air that has passed through the radiator is not drawn through again.

The fan tip to radiator core clearance shall be kept at a minimal distance to increase the efficiency of the fan and reduce fan blast noise.

FAN CLUTCH

A fan clutch shall be provided that shall allow the cooling fan to operate only when needed. The fan shall remain continuously activated when the truck is placed in pump gear.

SURGE TANK

The cooling system shall be equipped with an aluminum surge tank mounted to the officer's side of the cooling system core. The surge tank shall house a low coolant probe and sight glass to monitor the coolant level. Low coolant shall be alarmed with the check engine light. The surge tank shall be equipped with a dual seal cap that meets the engine manufacturer's pressure requirements, and system design requirements.

The tank shall allow for expansion and to remove entrained air from the system. There shall also be an extended fill neck to prevent system overflow and encroachment of expansion air space. Baffling shall be installed in the tank to prevent agitated coolant from being drawn into the engine cooling system.

FUEL TANK

The chassis shall be equipped with a 65-gallon stainless steel rectangular fuel tank. The fuel tank shall be certified to meet FMVSS 393.67 tests. It shall also maintain engine manufacturer's recommended expansion room of 5%.

The tank shall be removable by means of six (6) bolted connections and dropped. One (1) tank baffle shall be used.

Dual pick-up and return ports with a single 3/4" tank drawtube shall be provided for diesel generators if required.

The fuel lines shall be nylon braid reinforced fuel hose with brass fittings. The lines shall be carefully routed along the inside of the frame rails. All fuel lines are covered in high temperature rated split plastic loom. Single suction and return fuel lines shall be provided. The fuel tank shall be mounted in a saddle with a barrier between the tank and the saddle. The bottom of the fuel tank shall contain a 1/2" drain plug.

FUEL FILL

The fuel tank shall be equipped with a 2-1/4" filler neck assembly with a 3/4" vent located on the driver's side of the truck. A fuel fill cap attached with a lanyard shall be provided.

FUEL COOLER

Installed on the apparatus fuel system shall be an Air-To-Liquid aluminum fuel cooler. The fuel cooler shall be located in the lowest module of the cooling system.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank. The tank shall have a capacity of 5 usable gallons and shall be mounted on the left side of the chassis frame. The DEF tank fill neck shall accept only a 19mm dispensing nozzle versus the standard 22mm diesel fuel dispensing nozzle to prevent cross contamination. The DEF tank cap shall be blue in color to further prevent cross contamination.

A placard shall accompany fill location noting DEF specifications.

ALTERNATOR

A 360 ampere Niehoff alternator shall be provided. The alternator shall be serpentine belt driven.

A low voltage alarm, audible and visual, shall be provided.

BATTERIES

	YES	NO
<p>The chassis shall be equipped with a 65-gallon stainless steel rectangular fuel tank. The fuel tank shall be certified to meet FMVSS 393.67 tests. It shall also maintain engine manufacturer's recommended expansion room of 5%.</p> <p>The tank shall be removable by means of six (6) bolted connections and dropped. One (1) tank baffle shall be used.</p> <p>Dual pick-up and return ports with a single 3/4" tank drawtube shall be provided for diesel generators if required.</p> <p>The fuel lines shall be nylon braid reinforced fuel hose with brass fittings. The lines shall be carefully routed along the inside of the frame rails. All fuel lines are covered in high temperature rated split plastic loom. Single suction and return fuel lines shall be provided. The fuel tank shall be mounted in a saddle with a barrier between the tank and the saddle. The bottom of the fuel tank shall contain a 1/2" drain plug.</p> <p><u>FUEL FILL</u></p> <p>The fuel tank shall be equipped with a 2-1/4" filler neck assembly with a 3/4" vent located on the driver's side of the truck. A fuel fill cap attached with a lanyard shall be provided.</p> <p><u>FUEL COOLER</u></p> <p>Installed on the apparatus fuel system shall be an Air-To-Liquid aluminum fuel cooler. The fuel cooler shall be located in the lowest module of the cooling system.</p> <p><u>DIESEL EXHAUST FLUID TANK</u></p> <p>The exhaust system shall include a molded cross linked polyethylene tank. The tank shall have a capacity of 5 usable gallons and shall be mounted on the left side of the chassis frame. The DEF tank fill neck shall accept only a 19mm dispensing nozzle versus the standard 22mm diesel fuel dispensing nozzle to prevent cross contamination. The DEF tank cap shall be blue in color to further prevent cross contamination.</p> <p>A placard shall accompany fill location noting DEF specifications.</p> <p><u>ALTERNATOR</u></p> <p>A 360 ampere Niehoff alternator shall be provided. The alternator shall be serpentine belt driven.</p> <p>A low voltage alarm, audible and visual, shall be provided.</p> <p><u>BATTERIES</u></p>		

The battery system shall be a single system consisting of four (4) negative ground, 12 volt Interstate Group 31 MHD batteries, cranking performance of 950 CCA each with total of 3800 amps, 185 minute reserve capacity with 25 ampere draw at 80 degrees Fahrenheit. Each battery shall have 114 plates. The batteries shall include a one-year warranty which shall be accepted nationwide.

The batteries shall be installed in a vented 304 stainless steel battery box with a removable aluminum cover to protect the batteries from road dirt and moisture. The battery cover shall be secured with four "T" handle rubber hold downs to provide easy access for maintenance and inspection. Stainless steel hardware will be used for installation. The batteries are to be placed on dri-deck and secured with a fiberglass hold down. The batteries shall be wired directly to starter motor and alternator.

The battery cables shall be 3/0 gauge. Battery cable terminals shall be soldering dipped, color-coded and labeled on heat shrink tubing with a color-coded rubber boot protecting the terminals from corrosion.

There shall be a 350-ampere fuse protecting the pump primer and a 250-ampere fuse protecting the electric cab tilt pump and other options as required.

BATTERY JUMPER TERMINAL

There shall be one set (two studs) of battery jumper terminals located by the battery box under the cab. The terminals shall have plastic color-coded covers. Each terminal shall be tagged to indicate positive/negative.

120V SHORELINE INLET & AUTO EJECT

The apparatus shall be equipped with a 120V shoreline inlet to provide power to the battery charger from an external source. The inlet shall include a Kussmaul 091-55-234-XXX Super 20 Auto Eject featuring a built in bar graph display on the cover. Also featuring a 12 volt solenoid which shall eject the shoreline cord away from vehicle path upon sensing engine start. After ejection, a weatherproof cover shall snap into position over inlet.

A 20 amp connector shall be provided and shipped loose for connecting the external shoreline cord to the inlet.

120-VOLT OUTLET

A 120-volt outlet with weatherproof cover shall be provided. All 120 volt wiring shall be installed in liquid tight conduit.

BATTERY CHARGER

A Kussmaul Auto Charge LPC 40 model #091-200-12-IND low profile 40 amp battery charger shall be provided and installed in the cab. The unit shall include an auxiliary 15 amp output circuit with power source selector for operating accessory loads. The charger shall be wired to the 120V shoreline inlet.

FRONT AXLE

A Meritor™ MFS-20-133A non-driving, front steer axle with a capacity 20,000 pounds shall be provided. The axle shall have a 3.74" dropped I-beam, be 10 bolt hub piloted, and furnished with oil seals.

SUSPENSION (FRONT)

The front suspension shall be a variable rate taper-leaf design, 54" long and 4" wide. Long life, maintenance free, urethane bushed spring shackles shall be utilized. All spring and suspension mounting shall be attached directly to frame with high strength Huck bolts and self-locking round collars. Spring shackles and pins that require grease shall not be acceptable. NO EXCEPTIONS.

ENHANCED FRONT SUSPENSION SYSTEM

The front suspension shall have the handling, stability, and ride quality enhanced by the use of a Ride Tech auxiliary spring system and Koni high performance shock absorbers.

This system shall utilize three stage, urethane auxiliary springs, and high performance gas filled shock absorbers to control the deflection of the leaf springs, and dampen vibration normally transmitted to the chassis. This maintenance free system will be custom tuned to the apparatus gross weight rating for maximum performance, while maintaining a soft compliant ride. NO EXCEPTIONS.

A (3) three year 36,000 mile warranty will be provided by the manufacturer.

FRONT TIRES

Front tires shall be Goodyear 385/65R22.5, load range J, G296 highway tread, single tubeless type with a GAWR of 20,000 pounds. Wheels shall be disc type, hub piloted, 22.5 x 12.25 10 stud 11.25 bolt circle.

REAR AXLE

The rear axle shall be a Meritor™ RS-26-185 Single reduction drive axle with a capacity of 27,000 lbs. The axles shall be hub piloted, 10 studs, furnished with oil seals.

TOP SPEED

The top speed shall be approximately 68 MPH.

SUSPENSION (REAR)

27,000 LB AIR RIDE

A Hendrickson FIREMAAX model FMX272 air ride rear suspension shall be provided. The suspension shall be a dual air spring design equipped with dual height control valves to maintain proper ride height. To reduce axle stress and maintain axle position and pinion angle the suspension design shall incorporate three torque rods. The ground rating of the suspension shall be 27,000 pounds.

REAR TIRES

Rear tires shall be Goodyear 12R22.5, load range H, G622 Mud and Snow tread, dual tubeless type with a GAWR up to 27,000 pounds. Wheels shall be disc type, hub piloted, 22.5 x 8.25 10 stud with 11.25" bolt circle.

TIRE PRESSURE MONITOR

A Quick Pressure mechanical tire pressure sensor/indicator shall be provided for each wheel. The pressure sensor shall indicate if the tire is properly inflated. Each indicator shall have a green & red display visible inside a sight glass on the sensor. Full green indicates that the pressure is correct. Partial green/red indicates that the tire is under inflated by as little as 10%. Full red indicates that the tire is under inflated by 25% or more. The indicators shall replace the standard valve stem caps. A total of six (6) indicators shall be provided.

WHEELS

The front and rear wheels shall be ALCOA® brand aluminum. DURA-BRIGHT® finish shall be provided on front and outside-rear wheels.

HUB COVERS

Polished stainless steel hub covers shall be provided for the front and rear axle.

LUG NUT CAPS

Chrome plated lug nut caps shall be provided for the front and rear wheels.

FRONT MUD FLAPS

Hard rubber mud flaps shall be provided for front tires.

REAR MUD FLAPS

Hard rubber mud flaps shall be provided for rear tires.

BRAKES, Front

The front brakes shall be Arvin Meritor DiscPlus EX225 Air Disc Brakes. Each disc brake assembly shall include one (1) 17" vented rotor, one (1) lightweight hub, one (1) twin-piston caliper, and two (2) quick-change pads.

BRAKES, Rear

The rear brakes shall be Meritor S-cam style. They shall be 16.5" x 7" with heavy duty return springs, and a double anchor pin design. They shall also have quick change shoes for fast easy brake relining.

AIR BRAKE SYSTEM

The vehicle shall be equipped with air-operated brakes. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 standards.

Each wheel shall have a separate brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

All main brake lines shall be color-coded nylon type protected in high temperature rated split plastic loom. The brake hoses from frame to axle shall have spring guards on both ends to prevent wear and crimping as they move with the suspension. All fittings for brake system plumbing shall be brass.

A Meritor Wabco System Saver 1200 air dryer shall be provided.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. The system shall be designed so the vehicle can be moved within 60 seconds of startup. The quick build up system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time. The vehicle shall not be required to have a separate on-board electrical air compressor or shoreline hookup to meet this requirement.

Four (4) supply tanks shall be provided. One air reservoir shall serve as a wet tank and a minimum of one tank shall be supplied for each the front and rear axles. A Schrader fill valve shall be mounted in the front of the driver's step well.

A spring actuated air release emergency/parking brake shall be provided on the rear axle. One (1) parking brake control shall be provided and located on the engine hood next to the transmission shifter within easy reach of the driver. The parking brake shall automatically apply at 35 ±10 PSI reservoir pressure. A Meritor WABCO IR-2 Inversion Relay Valve, supplied

	YES	NO
<p><u>BRAKES, Front</u></p> <p>The front brakes shall be Arvin Meritor DiscPlus EX225 Air Disc Brakes. Each disc brake assembly shall include one (1) 17" vented rotor, one (1) lightweight hub, one (1) twin-piston caliper, and two (2) quick-change pads.</p> <p><u>BRAKES, Rear</u></p> <p>The rear brakes shall be Meritor S-cam style. They shall be 16.5" x 7" with heavy duty return springs, and a double anchor pin design. They shall also have quick change shoes for fast easy brake relining.</p> <p><u>AIR BRAKE SYSTEM</u></p> <p>The vehicle shall be equipped with air-operated brakes. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 standards.</p> <p>Each wheel shall have a separate brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.</p> <p>All main brake lines shall be color-coded nylon type protected in high temperature rated split plastic loom. The brake hoses from frame to axle shall have spring guards on both ends to prevent wear and crimping as they move with the suspension. All fittings for brake system plumbing shall be brass.</p> <p>A Meritor Wabco System Saver 1200 air dryer shall be provided.</p> <p>The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. The system shall be designed so the vehicle can be moved within 60 seconds of startup. The quick build up system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time. The vehicle shall not be required to have a separate on-board electrical air compressor or shoreline hookup to meet this requirement.</p> <p>Four (4) supply tanks shall be provided. One air reservoir shall serve as a wet tank and a minimum of one tank shall be supplied for each the front and rear axles. A Schrader fill valve shall be mounted in the front of the driver's step well.</p> <p>A spring actuated air release emergency/parking brake shall be provided on the rear axle. One (1) parking brake control shall be provided and located on the engine hood next to the transmission shifter within easy reach of the driver. The parking brake shall automatically apply at 35 ±10 PSI reservoir pressure. A Meritor WABCO IR-2 Inversion Relay Valve, supplied</p>		

by both the Primary and Secondary air systems, shall be used to activate the parking brake and to provide parking brake modulation in the event of a primary air system failure. Accessories plumbed from the air system shall go through a pressure protection valve and to a manifold so that if accessories fail they shall not interfere with the air brake system.

AUTOMATIC HEATED MOISTURE EJECTORS

Each air tank in the chassis braking system shall consist of a heated automatic moisture ejector to assist in keeping the air tanks and air lines free of debris and moisture. A manual pull cable shall be incorporated.

AIR COMPRESSOR

A Kussmaul 091-9B-1-AD 120V 100 PSI air compressor shall be provided and installed in the cab. The vehicle mounted air compressor shall ensure that the air brake system is properly pressurized for immediate response of the unit. A pressure switch shall regulate operation and shall automatically sense low air pressure in the brake system and restore the proper pressure.

The unit shall have an auto drain which shall be installed on the outlet side of the air compressor and shall automatically purge water from the air discharge output. The water shall be ejected from the water separator bowl every time the compressor cycles off via a 120 volt solenoid.

The compressor shall be wired to the 120V shoreline connection.

AIR BRAKING ABS SYSTEM

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally sealed from water and weather and be vibration resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to 5 times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall indicate malfunction to the operator.

The system shall consist of a sensor clip, sensor, electronic control unit and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed,

corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate wheel slip in milliseconds.

COMPRESSION FITTINGS ON AIR SYSTEM

All air line fittings installed on the chassis shall be compression style fittings.

The following locations shall utilize push-on fittings:

- Pressure protection valve (accessory block)
- Double check valve (braking system, park brake)
- One way check valve (brake valve tank)
- Elbow Male Modified 1/4" tube x 1/4" MP (low air switch)
- Elbow Male 1/4" tube x 3/8"MP (brake pedal solenoid)
- Connector 1/4" x 3/8"MPT (brake pedal solenoid)
- Switch stoplight (Wabco sealed switch/brake light and service brake switch)
- Low pressure switch (PTC) (Wabco sealed switch/low air switch)

MISCELLANEOUS CHASSIS EQUIPMENT

Fluid capacity plate affixed below driver's seat.
 Chassis filter part number plate affixed below driver's seat.
 Maximum rated tire speed plaque near driver.
 Tire pressure label near each wheel location.
 Cab occupancy capacity label affixed next to transmission shifter.
 Do not wear helmet while riding plaque for each seating position.
 NFPA compliant seat belt and standing warning plates provided.

ALUMINUM CAB

The cab shall be a full tilt 8-person 10".5" rear raised roof cab designed specifically for the fire service and manufactured by the chassis builder. Apparatus cabs that are not manufactured by the apparatus manufacturer shall not be acceptable.

CAB DESIGN

The apparatus chassis shall be of an engine forward, fully enclosed tilt cab design. There shall be four (4) side entry doors.

The cab shall be of a fully open design with no divider wall or window separating the front and rear cab sections. The cab shall be designed in a manner that allows for the optimum forward-facing vision for crew. Cab designs that utilize roof mounted air conditioning units, are not desired.

The cab shall be constructed of high strength 5052H32 aluminum plate welded to 6061-T6 extruded aluminum framing.

The cab roof shall utilize 5" x 5" honeycomb re-enforced 6061 T6 aluminum extrusion, with fully radiused outer corner rails with integral drip channel and 6061 T6 ¾" x 2" x 3/16" aluminum box tubing type cross brace supports. Structures that do not include an integral drip channel will not be accepted. The box tubing type cross brace supports shall be installed in a curved fashion beginning from the midline of the apparatus cab and curving toward the exterior corner rails. This curvature will allow for increased strength in the event of a roll over while not allowing for rainwater buildup on the apparatus cab roof.

The cab sides shall be constructed from 1 ½" x 3" x 3/16" 6061 T6 extruded door pillars and posts that provide a finished door opening, extruded and formed wheel well openings supports, formed aluminum wheel well liners and box tubing type support braces.

The cab floor and rear cab wall shall utilize 1 ¾" x 4" x 3/16" 6061 T6 extruded box tubing type framing and support bracing.

The framework shall be of a welded construction that fully unitizes the structural frame of the cab.

The structural extrusion framework shall be overlaid with interlocked aluminum alloy sheet metal panels to form the exterior skin of the cab. The cab sides shall be constructed of 3/16" thick 5052H32 aluminum plate that slides into an integral channel of the extrusion framework. The plate is then skip welded into that channel to allow for tolerable flex while the apparatus travels down the roadway. Cab designs that utilize 1/8" thick aluminum for the cab sides shall not be acceptable.

The structural extrusion framework shall support and distribute the forces and stresses imposed by the chassis and cab loads and shall not rely on the sheet metal skin for any structural integrity.

The cab face extrusion framework shall be overlaid with 1/8" thick 5052H32 aluminum plate to allow for an aesthetically pleasing radiused cab face.

CAB SUB-FRAME

The cab shall be mounted to a 4" x 4" x 3/8" steel box tube sub-frame, and shall be isolated from the chassis, through the use of no less than six (6) elastomeric bushings. This substructure shall be completely independent of the apparatus cab. The sub frame shall be painted to match the primary chassis color.

The sub-frame shall be mounted to the chassis through the use of lubricated Kaiser Bushings for the front pivot point, and two (2) hydraulically activated cab latches, to secure the rear.

Cab mounting that does not include a sub-frame shall not be considered. NO EXCEPTIONS.

CAB DIMENSIONS

The cab shall be designed to satisfy the following minimum width and length dimensions:

- Cab Width (excluding mirrors) 98"
- Cab Length (from C/L of front axle)
- To front of cab (excluding bumper) 68"
- To rear of cab 73"
- Total Cab Length (excluding bumper) 141"

ROOF DESIGN

The cab shall be of a one-half 10" raised roof design with side drip rails and shall satisfy the following minimum height dimensions:

- Cab Dimensions Interior
- Front 59"
- Rear 65"

- Cab Dimensions Exterior
- Front 65"
- Rear 75"

FENDER CROWNS

Polished stainless-steel front axle fenderettes with full depth radiused wheel well liners shall be provided.

CAB INSULATION

The exterior walls, doors, and ceiling of the cab shall be insulated from the heat and cold, and to further reduce noise levels inside the cab. The cab interior sound levels shall not exceed 90 decibels at 45 mph in all cab seat positions. NO EXCEPTIONS

EXTERIOR GLASS

The cab windshield shall be of a two-piece curved design utilizing tinted, laminated, automotive approved safety glass. The window shall be held in place by an extruded rubber molding. The cab shall be finished painted prior to the window installation.

SUN VISORS

	YES	NO
<p>Cab mounting that does not include a sub-frame shall not be considered. NO EXCEPTIONS.</p> <p><u>CAB DIMENSIONS</u></p> <p>The cab shall be designed to satisfy the following minimum width and length dimensions:</p> <ul style="list-style-type: none"> Cab Width (excluding mirrors) 98" Cab Length (from C/L of front axle) To front of cab (excluding bumper) 68" To rear of cab 73" Total Cab Length (excluding bumper) 141" <p><u>ROOF DESIGN</u></p> <p>The cab shall be of a one-half 10" raised roof design with side drip rails and shall satisfy the following minimum height dimensions:</p> <ul style="list-style-type: none"> Cab Dimensions Interior Front 59" Rear 65" <ul style="list-style-type: none"> Cab Dimensions Exterior Front 65" Rear 75" <p><u>FENDER CROWNS</u></p> <p>Polished stainless-steel front axle fenderettes with full depth radiused wheel well liners shall be provided.</p> <p><u>CAB INSULATION</u></p> <p>The exterior walls, doors, and ceiling of the cab shall be insulated from the heat and cold, and to further reduce noise levels inside the cab. The cab interior sound levels shall not exceed 90 decibels at 45 mph in all cab seat positions. NO EXCEPTIONS</p> <p><u>EXTERIOR GLASS</u></p> <p>The cab windshield shall be of a two-piece curved design utilizing tinted, laminated, automotive approved safety glass. The window shall be held in place by an extruded rubber molding. The cab shall be finished painted prior to the window installation.</p> <p><u>SUN VISORS</u></p>		

The sun visors shall be made of dark smoke colored transparent polycarbonate. There shall be a visor located at both the driver and officer positions, recessed in a molded form for a flush finish.

CAB STEPS

The lower cab steps shall be no more than 22" from the ground. An intermediate step shall be provided, mid-way between the lower cab step, and the cab floor.

The intermediate step shall be slightly inset to provide for safer ingress and egress. All steps shall be covered with material that meets or exceeds the NFPA requirements for stepping surfaces.

STEP LIGHTS

A white LED strip light shall illuminate each interior cab step. These lights shall illuminate whenever the battery switch is on and the cab door is opened.

CAB STRUCTURAL INTEGRITY

The cab of the apparatus shall be designed and so attached to the vehicle as to eliminate, to the greatest possible extent, the risk of injury to the occupants in the event of an accident.

The apparatus cab shall be tested to specific load and impact tests with regard to the protection of occupants of a commercial vehicle.

A test shall be conducted to evaluate the frontal impact strength of the apparatus cab to conform to the test J2420 and the "United Nations Regulation 29, Annex 3, paragraph 4, (Test A). A second test shall be conducted to evaluate the roof strength of the apparatus cab to conform to the Society Of Automotive Engineers (SAE) SAE J2422/SAE J2420 and "United Nations Regulation 29, Annex 3, paragraph 5, (Test B) and SAE J2420. The evaluation shall consist of the requirements imposed by ECE Regulation 29, Paragraph 5.

The test shall be conducted by a certified independent third party testing institution.

A letter stating successful completion of the above test on the brand of cab being supplied shall be included in the bid. There shall be "no exception" to this requirement.

SEAT BELT TESTING

The seat belt anchorage system shall be tested to meet FMVSS 207 Section 4.2a and FMVSS 210 section 4.2. Testing shall be conducted by an independent third party product evaluation company.

A copy of the certification letter shall be supplied with the bid documents.

CAB LOCKDOWN LATCHES

Cab lockdown latches shall be provided to prevent the cab from being tilted in the down position. Once the cab tilt switch is engaged the cab latches will release to allow the cab to be tilted.

CAB TILT SYSTEM

An electrically powered hydraulic cab tilt system shall be provided and shall lift the cab to an angle of 45 degrees, exposing the engine and accessories for fluid checks and service work. The system shall be interlocked to only operate when the parking brake is set.

The lift system shall be comprised of two (2) hydraulic lift cylinders, an electrically driven hydraulic pump, and a control switch. The hydraulic pump shall be located on the exterior of the frame rail on the driver's side of the chassis that can be easily accessible when the cab is tilted. A mechanical locking system consisting of an air operated actuator and a heavy radiused wall 3" x 3" aluminum extrusion will be provided to ensure the cab remains in the raised position in the event of a hydraulic failure. Additionally, each of the hydraulic lift cylinders shall incorporate a check valve, and velocity fuses that will activate should a sudden drop in pressure be detected. The cab tilt controls shall be interlocked to the parking brake to ensure the cab will not move, unless the parking brake is set. The cab tilt controls will consist of a momentary raise/lower switch and a two position cab safety lock switch.

The hydraulic lift cylinders will be connected to a steel cab sub-frame, and not directly to the cab. NO EXCEPTIONS

MANUAL CAB LIFT

There shall be a manually operated hydraulic pump for tilting the cab in case the main pump should fail. Access to the pump shall be located under the left corner of the front bumper.

CAB DOORS

The cab doorframes shall be constructed from 6061 T6 aluminum extrusions fitted with a 5052 H32 aluminum sheet metal skin and shall be equipped with dual weather seals. The outside cab door window opening shall be framed by a black anodized aluminum trim, to provide a clean appearance. The cab doors shall be equipped with heavy-duty door latching hardware, which complies with FMVSS 206. The door latch mechanism shall utilize control cable linkage for positive operation. A rubber coated nylon web doorstop shall be provided.

The doors shall be lap type with a 10 gauge full-length stainless steel flange and 3/8" diameter hinge pin and shall be fully adjustable.

All openings in the cab shall be grommeted or equipped with rubber boots to seal the cab from extraneous noise and moisture.

The cab doors shall be designed to satisfy the following minimum opening and step area dimensions:

Door Opening:

Front 36.5" x 73"

Rear 36.5" x 73"

CAB STEPS

The lower cab steps shall be no more than 22" from the ground. Grip strut material shall be installed on the stepping surface.

An intermediate step shall be provided, mid way between the lower cab step, and the cab floor. The intermediate step shall be slightly inset to provide for safer ingress and egress. Diamondplate material shall be installed on the stepping surface.

All steps shall be covered with material that meets or exceeds the NFPA requirements for stepping surfaces.

STEP LIGHTS

A white Federal Signal Complex LED strip light shall illuminate each interior cab step. These lights shall illuminate whenever the battery switch is on and the cab door is opened.

POWER WINDOWS

All four cab entry doors shall have power windows. Each door shall be individually operated and the driver's position shall have master control over all windows. All four windows shall roll down completely.

SIDE WINDOWS

Fixed position side window shall be provided on each side of the cab between the forward cab area and the crew cab area. The windows shall be approximately 20.5" high x 16.50" wide to provide maximum visibility. The side windows shall be held in place by an extruded rubber molding with a chrome plated decorative locking bead.

EXTERIOR CAB COMPARTMENTS, TRANSVERSE

There shall be a compartment recessed in each side of the cab behind the rear doors. The driver's side compartment shall be approximately 37" high x 13" wide x 24" deep (lower section). The officer's side compartment shall be approximately 37" high x 13" wide x 22" deep (lower section). The upper section shall be transverse through the crew cab seat compartment.

The compartments shall have hinged doors that are hinged at the front. The doors shall have an Austin Hardware slam catch single-point "D"-ring door closure and held open with gas struts.

Each compartment shall be illuminated with (1) LED light.

WINDSHIELD WIPERS

Two (2) black anodized finish two speed synchronized electric windshield wiper system. Dual motors with positive parking. System includes large dual arm wipers with built in washer system. One (1) master control works the wiper, washer and intermittent wipe features. Washer bottle is a remote fill with a 4 quart capacity. Washer fill is located just inside of officer cab door.

CAB HANDRAILS

There shall be a 24" long, handrail provided and installed, at each cab entrance. The handrails shall be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges shall be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail shall have 90 degree returns to flanges. The ends of grab rail shall pass through the flanges and be welded to form one structural unit. The handrails shall be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange.

Sufficient space shall allow for a gloved hand to firmly grip the rail.

There shall be two (2) rubber coated grab handles provided and mounted on the interior of the cab, one each side, on the windshield post for ingress assistance. The handrail on the driver's side shall be approximately 11" long and the handrail on the officer's side shall be approximately 18" long.

COAT HOOKS FOR GRAB HANDLES

There shall be a coat hook installed at the top of each exterior cab handrail, for hanging of coats, turnout gear, etc.

HANDRAILS, FRONT OF CAB

There shall be a pair of knurled stainless steel handrails on the front face of the cab, below the windshields.

CAB DOOR HANDRAILS

Two (2) 1.25" diameter knurled stainless steel handrails shall be provided on the inside of the rear crew doors just above the windowsill.

	YES	NO
<p>The compartments shall have hinged doors that are hinged at the front. The doors shall have an Austin Hardware slam catch single-point "D"-ring door closure and held open with gas struts.</p> <p>Each compartment shall be illuminated with (1) LED light.</p> <p><u>WINDSHIELD WIPERS</u></p> <p>Two (2) black anodized finish two speed synchronized electric windshield wiper system. Dual motors with positive parking. System includes large dual arm wipers with built in washer system. One (1) master control works the wiper, washer and intermittent wipe features. Washer bottle is a remote fill with a 4 quart capacity. Washer fill is located just inside of officer cab door.</p> <p><u>CAB HANDRAILS</u></p> <p>There shall be a 24" long, handrail provided and installed, at each cab entrance. The handrails shall be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges shall be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail shall have 90 degree returns to flanges. The ends of grab rail shall pass through the flanges and be welded to form one structural unit. The handrails shall be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange.</p> <p>Sufficient space shall allow for a gloved hand to firmly grip the rail.</p> <p>There shall be two (2) rubber coated grab handles provided and mounted on the interior of the cab, one each side, on the windshield post for ingress assistance. The handrail on the driver's side shall be approximately 11" long and the handrail on the officer's side shall be approximately 18" long.</p> <p><u>COAT HOOKS FOR GRAB HANDLES</u></p> <p>There shall be a coat hook installed at the top of each exterior cab handrail, for hanging of coats, turnout gear, etc.</p> <p><u>HANDRAILS, FRONT OF CAB</u></p> <p>There shall be a pair of knurled stainless steel handrails on the front face of the cab, below the windshields.</p> <p><u>CAB DOOR HANDRAILS</u></p> <p>Two (2) 1.25" diameter knurled stainless steel handrails shall be provided on the inside of the rear crew doors just above the windowsill.</p>		

MIRRORS

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors shall be installed on each side of the vehicle. The main mirror shall be 4-way remote adjustable with heat, 7" x 16" 2nd surface chromed flat glass. The convex shall be 6" x 8" 2nd surface chromed 400 mm radius glass. Each mirror housing assembly shall be constructed of lightweight textured chrome ABS with on truck glass and housing back cover replacement. In the event the mirror breaks the glass shall be replaceable in (3) minutes or less. The glass shall include a safety adhesive backing to keep broken glass in place. The mirror assembly shall be supported by a "C" loop bracket constructed of polished stainless-steel tube utilizing two point mounting reducing vibration of mirror glass during normal vehicle operation. The lower section of the holder shall include a spring-loaded single detent position 20 degrees forward with easy return to operating position without refocusing.

GRILLE

The front of the cab shall be equipped with a polished stainless-steel grille with sufficient area to allow proper airflow into the cooling system and engine compartment. Plastic chrome plated grilles shall not be acceptable.

UPPER GRILLE LOGO

The upper grille shall have a laser cut flaming "S" logo in the upper portion of the grille. The cut out shall contain reflective material behind.

LOWER GRILLE

The front of the cab shall be equipped with a polished stainless-steel lower grille with custom laser engraved design per customer specifications. The design shall allow proper airflow into the cooling system and engine compartment. Plastic chrome plated lower grille shall not be acceptable.

BUMPER

There shall be a 12" high double rib polished stainless-steel wrap-around bumper provided at the front of the apparatus. Laser cut perforated grilles shall be incorporated into the bumper and located at the outboard of the frame rails for the air horns and at the center for the siren speaker. The bumper shall be mounted to a reinforcement plate constructed of 1/4" x 10" x 70" carbon steel. A gravel shield shall be provided, constructed of .188" aluminum diamond plate. The bumper extension shall be approximately 30".

BUMPER SIDES

The sides of the bumper shall be finished with diamond plate.

STORAGE WELL COMPARTMENT

EXCEPTIONS TAKEN	YES	NO
<p><u>MIRRORS</u></p> <p>Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors shall be installed on each side of the vehicle. The main mirror shall be 4-way remote adjustable with heat, 7" x 16" 2nd surface chromed flat glass. The convex shall be 6" x 8" 2nd surface chromed 400 mm radius glass. Each mirror housing assembly shall be constructed of lightweight textured chrome ABS with on truck glass and housing back cover replacement. In the event the mirror breaks the glass shall be replaceable in (3) minutes or less. The glass shall include a safety adhesive backing to keep broken glass in place. The mirror assembly shall be supported by a "C" loop bracket constructed of polished stainless-steel tube utilizing two point mounting reducing vibration of mirror glass during normal vehicle operation. The lower section of the holder shall include a spring-loaded single detent position 20 degrees forward with easy return to operating position without refocusing.</p> <p><u>GRILLE</u></p> <p>The front of the cab shall be equipped with a polished stainless-steel grille with sufficient area to allow proper airflow into the cooling system and engine compartment. Plastic chrome plated grilles shall not be acceptable.</p> <p><u>UPPER GRILLE LOGO</u></p> <p>The upper grille shall have a laser cut flaming "S" logo in the upper portion of the grille. The cut out shall contain reflective material behind.</p> <p><u>LOWER GRILLE</u></p> <p>The front of the cab shall be equipped with a polished stainless-steel lower grille with custom laser engraved design per customer specifications. The design shall allow proper airflow into the cooling system and engine compartment. Plastic chrome plated lower grille shall not be acceptable.</p> <p><u>BUMPER</u></p> <p>There shall be a 12" high double rib polished stainless-steel wrap-around bumper provided at the front of the apparatus. Laser cut perforated grilles shall be incorporated into the bumper and located at the outboard of the frame rails for the air horns and at the center for the siren speaker. The bumper shall be mounted to a reinforcement plate constructed of 1/4" x 10" x 70" carbon steel. A gravel shield shall be provided, constructed of .188" aluminum diamond plate. The bumper extension shall be approximately 30".</p> <p><u>BUMPER SIDES</u></p> <p>The sides of the bumper shall be finished with diamond plate.</p> <p><u>STORAGE WELL COMPARTMENT</u></p>		

There shall be a hose well compartment located in the center of the front bumper. The compartment shall run the full length of the bumper and measure approximately 75" long x 22" wide x 12" deep at the ends and 12" deep in the center. The trough shall be constructed of .125" smooth aluminum plate. A provision shall be provided for the mounting of the fire department provided Hurst eDraulic tools.

BUMPER TROUGH LIP

The bumper trough shall have a 1" lip around the top of the trough to assist in containing components in the trough as well as reducing allowance of moisture and debris into the trough.

DIAMOND PLATE BUMPER LID

There shall be a 1/8" diamond plate cover with latches provided for the front bumper trough. The cover shall have a 4" rise to accommodate the storage well requirements.

AIR HORNS

Two (2) Grover 2040 Stuttertone rectangular, chrome plated, air horns shall be provided.

ELECTRONIC SIREN

One (1) Whelen 295HFS2 electronic siren shall be installed at the cab instrument panel complete with noise canceling microphone. The remote control head shall be flush mounted in a location specified by the fire department.

A foot switch for the electronic siren shall be provided on the driver's side.

SIREN SPEAKER

One (1) Whelen SA314B 100 watt weatherproof aluminum siren speaker with black epoxy-coated finish shall be provided and wired to the electronic siren.

SPEAKER MOUNTING

The electronic siren speaker(s) shall be installed behind the main cab grille.

FEDERAL Q2B SIREN

There shall be a Federal Q2B-NN siren installed in the center of the cab grille. The siren shall be securely mounted and activated by means of a solenoid and shall include a brake.

SIREN WIRED TO STEERING WHEEL BUTTON

The mechanical siren shall be wired through the steering wheel button. A selector switch shall be provided on the instrument panel to switch between functions.

CAB EXTERIOR LIGHTING

Exterior lighting and reflectors shall meet or exceed Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements.

HEADLIGHTS

The front low and high beam headlights shall be FIRETECH model FT-4X6 LED, rectangular shaped, quad style installed in custom rectangular shaped stainless steel housings on the front of the cab. Each housing shall accommodate a forward-facing turn signal in the outboard location and a side-facing warning light.

An additional pair of rectangular shaped stainless steel housings shall be installed on the front of the cab above the headlight housings. Each housing shall accommodate two (2) forward-facing warning lights and a side-facing turn signal.

HEADLIGHT FINISH

The interior components of the headlights shall have a chrome finish.

FRONT TURN SIGNALS

There shall be four (4) Whelen 400 Series Model 40A00AAR LED rectangular amber turn signal lights mounted one (1) each side in the front of the headlight housings and one (1) mounted on the side of each warning light housing.

CAB REAR WALL COVERING

The rear outside wall of the cab shall be covered with 1/8" aluminum diamond plate.

SCUFF PLATES

The rear outside back walls of the cab shall be covered with brushed stainless steel to serve as scuff protection. This plate shall run from the outside edge of the cab inboard towards the frame rail about 12" and will run the full height of the cab, from the cab roof to the bottom of the cab.

DIAMONDPLATE, CAB ROOF, FULL WIDTH

The rear exterior section of the cab roof shall have a diamond plate overlay. The overlay shall be constructed of .125" aluminum serrated diamond plate and measure the full width of the cab roof and from the cab's back wall to the edge of the raised roof (if applicable), or to the mid-section of the cab roof (if flat roof).

	YES	NO
<p>The mechanical siren shall be wired through the steering wheel button. A selector switch shall be provided on the instrument panel to switch between functions.</p> <p><u>CAB EXTERIOR LIGHTING</u></p> <p>Exterior lighting and reflectors shall meet or exceed Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements.</p> <p><u>HEADLIGHTS</u></p> <p>The front low and high beam headlights shall be FIRETECH model FT-4X6 LED, rectangular shaped, quad style installed in custom rectangular shaped stainless steel housings on the front of the cab. Each housing shall accommodate a forward-facing turn signal in the outboard location and a side-facing warning light.</p> <p>An additional pair of rectangular shaped stainless steel housings shall be installed on the front of the cab above the headlight housings. Each housing shall accommodate two (2) forward-facing warning lights and a side-facing turn signal.</p> <p><u>HEADLIGHT FINISH</u></p> <p>The interior components of the headlights shall have a chrome finish.</p> <p><u>FRONT TURN SIGNALS</u></p> <p>There shall be four (4) Whelen 400 Series Model 40A00AAR LED rectangular amber turn signal lights mounted one (1) each side in the front of the headlight housings and one (1) mounted on the side of each warning light housing.</p> <p><u>CAB REAR WALL COVERING</u></p> <p>The rear outside wall of the cab shall be covered with 1/8" aluminum diamond plate.</p> <p><u>SCUFF PLATES</u></p> <p>The rear outside back walls of the cab shall be covered with brushed stainless steel to serve as scuff protection. This plate shall run from the outside edge of the cab inboard towards the frame rail about 12" and will run the full height of the cab, from the cab roof to the bottom of the cab.</p> <p><u>DIAMONDPLATE, CAB ROOF, FULL WIDTH</u></p> <p>The rear exterior section of the cab roof shall have a diamond plate overlay. The overlay shall be constructed of .125" aluminum serrated diamond plate and measure the full width of the cab roof and from the cab's back wall to the edge of the raised roof (if applicable), or to the mid-section of the cab roof (if flat roof).</p>		

The interior back wall of the cab and the side walls near the forward-facing crew seats shall be covered with 3/16" smooth aluminum.

CAB INTERIOR

The metal surfaces of the cab interior shall be coated and sealed with Scorpion heavy duty, black polyurethane blended coating. The textured coating shall provide paramount durability and wear resistance against foreign objects and normal wear and tear.

The front and rear headliners, as well as the rear cab wall, shall be finished in Gray-Black Durawear covered padded panels.

INTERIOR DOOR PANELS

The interior of the cab entry doors shall have a 304 brushed stainless steel scuff plate, contoured to the door, from the door window sill down.

REFLECTIVE MATERIAL, CHEVRON STRIPING, INTERIOR CAB DOORS, ORAFOL REFLEXITE

The apparatus shall have reflective Orafol Reflexite Chevron striping affixed to the inside of each cab door. The striping shall be plainly visible to oncoming traffic when the doors are in the open position.

CAB FLOOR COVERING

The cab interior floor shall be covered with a 5/16" thick, black rubberized material to provide a rugged but cosmetically pleasing stepping surface throughout the cab. The floor covering shall provide superior durability and resistance against foreign objects as well as normal wear and tear.

DIAMOND PLATE, CAB FLOOR

The cab floor shall be covered with 1/8" embossed diamondplate.

ENGINE ENCLOSURE

An integral, formed aluminum and composite engine enclosure shall be provided. The engine enclosure shall be contoured and blended in an aesthetically pleasing manner with the interior dash and flooring of the cab. The enclosure shall be kept as low as possible, to maximize space and increase crew comfort.

The enclosure shall be constructed from 5052 H2 aluminum plate and GRP composite materials, providing high strength, low weight, and superior heat and sound deadening qualities.

Additionally, the underside of the engine enclosure shall be coated in with a ceramic spray on insulation and sound control. This coating is an environmentally-friendly coating that is applied seamlessly and rapidly while providing superior thermal insulation and protection against vibration and noise, and will prevent future corrosion from forming by sealing the substrate. NO EXCEPTIONS

ENGINE ENCLOSURE COVERING

The top of the engine enclosure shall be covered with Scorpion heavy duty, black polyurethane blended coating. The textured coating shall provide paramount durability and wear resistance against foreign objects and normal wear and tear as well as sound deadening and insulation. The rubberized cab floor covering shall extend up the lower exterior sides of the engine enclosure to aid in sound deadening and heat resistance.

TOOL MOUNTING PLATE

There shall be a 3/16" smooth aluminum plate installed on the engine enclosure between the driver and the officer for use in mounting of equipment. The mounting plate shall feature beveled edges on the front and sides for a finished appearance. The plate shall be coated with the same finish as the engine enclosure and shall be secured to the engine cover with screws for easy replacement.

ENGINE HOOD LIGHTS

An LED work light shall be installed in the engine enclosure with an individual switch located on the base of the light.

WORK SURFACE

There shall be a flat work surface in front of the officer's seat.

CHASSIS WIRING

All chassis wiring shall have XL high temperature crosslink insulation. All wiring shall be color-coded, and the function and number stamped at 3" intervals on each wire. All wiring shall be covered with high temperature rated split loom for easy access to wires when trouble shooting. All electrical connectors and main connectors throughout the chassis shall be treated to prevent corrosion.

MASTER ELECTRICAL PANEL

The main chassis breaker panel shall be wired through the master disconnect solenoid and controlled by the three-position ignition rocker switch. The breaker panel shall be located in front of the officer on the interior firewall and shall be protected by a removable aluminum cover. The cover shall have an aluminum notebook holder on the exterior face accessible to the officer. The cover shall be painted with a durable finish to match the interior of the cab and shall be secured with two (2) thumb screws.

The breaker panel shall include up to 22 ground switched relays with circuit breaker protection. An integrated electrical sub-panel shall be provided and interfaced to the body and chassis through an engineered wire harness system.

Twelve (12) 20-ampere relays and one (1) 70-ampere relay shall be provided for cab light bar and other electrical items. If the option for a mechanical siren has been selected two (2) additional relays shall be provided.

Up to two (2) additional relay boards with circuit breaker protection shall be provided for additional loads as required. Each board shall contain four (4) relays. The relay boards shall be configured to trip with input from switch of positive-negative or load manager by moving the connector on the board (no tools required).

All relay boards shall be equipped with a power-on indicator light (red), input indicator light (green) and power output indicator light (red).

Up to twenty-three (23) additional automatic reset circuit breakers for non-switched loads that are remotely switched (ie: heater fans, hood lights, etc.) shall be provided.

All relays and circuit breakers on the relay boards shall be pull-out/push-in replaceable.

All circuit breakers on the relay boards shall be 20 ampere automatic reset which can be doubled or tripled for 40 or 60-ampere capacity.

The system shall utilize Deutsch DRC weather resistant connectors at the breaker panel, toe board and main dash connections.

All internal wire end terminals, including locking connectors, shall be mechanically affixed to the wire ends by matching terminal crimping presses to assure the highest quality terminations.

All internal splices shall be ultrasonically welded connections and all internal wiring shall be high temperature GXL type wire that is protected by wiring duct wherever possible.

All switches shall be ground controlled; no power going through any rocker switch.

Any switch controlling a relay in the breaker panel shall be capable of being set to function only when the parking brake is set. All relays shall be tagged with the function that the relay is controlling.

INSTRUMENT PANEL

The main dash shroud, which covers the area directly in front of the driver from the doorpost to the engine hood, shall be constructed of vacuum formed ABS material with scorpion texture. The dash shall be a one-piece hinged panel that tilts outward for easy access to service the internal components. The gauge panel shall be constructed with a .125" aluminum panel, covered with a scratch resistant reverse printed and laminated poly carbonite.

The gauges shall be AMETEK Vehicular Instrumentation Systems (VIS), Next Generation Instrumentation System (NGI) with built-in self-diagnostics and red warning lights to alert the driver of any problems. All gauges and controls shall be backlit for night vision and identified for function. All main gauges and warning lights shall be visible to the driver through the steering wheel.

MASTER BATTERY & IGNITION SWITCH

The vehicle shall be equipped with a keyless ignition, with a three (3)-position Master Battery rocker switch, "Off/ACC/On" and a two (2)-position Engine Start rocker switch, "Off/Start".

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One control shall be for regeneration and one control shall be to inhibit engine regeneration. These shall be located below the steering wheel in the kick panel.

INSTRUMENTATION & CONTROLS

Instrumentation on dash panel in front of the driver:

Tachometer/hourmeter with high exhaust system regeneration temperature, and instrument malfunction indicators

Speedometer/odometer with built in turn signal, high beam, and re-settable trip odometer

Voltmeter

Diesel fuel gauge

DEF (Diesel Exhaust Fluid) gauge

Engine oil pressure

Transmission temperature

Engine temperature

Primary air pressure

Secondary air pressure

Indicators and warning lights in front of the driver:

Parking brake engaged

Low air with buzzer

Antilock brake warning

Check transmission

EXCEPTIONS TAKEN

YES

NO

	YES	NO
Transmission temperature		
Upper power indicator		
Seat belt		
Engine temperature		
Low oil indicator		
Low voltage indicator		
Air filter restriction light		
Low coolant indicator		
High idle indicator		
Power on indicator		
Check engine		
Stop engine		
Check engine MIL lamp		
DPF indicator		
High exhaust temperature		
Wait to start		
Other indicator and warning lights (if applicable):		
Differential locked		
PTO (s) engaged		
Auto-slip response		
Retarder engaged		
Retarder temperature		
ESC indicator		
Controls located on main dash panel in front of the driver:		
Master power disconnect with ignition switch		
Engine start switch		
Headlight switch		
Windshield wiper/washer switch		
Differential lock switch (if applicable)		
Dimmer switch for backlighting		
Controls included in steering column:		
Horn button		
Turn signal switch		
Hi-beam low-beam switch		
4-way flasher switch		
Tilt-telescopic steering wheel controls		
<u>CENTER CONTROL CONSOLE</u>		

There shall be an ergonomically designed center control console. The console shall be constructed of 1/8" smooth aluminum and shall be mounted on the engine hood between the driver and officer. The console shall have a durable coating to match the color of the engine hood covering and shall feature surfaces on each side that are contoured to face the driver and the officer for easy viewing and accessibility. The switches and other customer specified electrical items shall be mounted in removable 1/8" smooth aluminum panels with a black wrinkle finish. The console shall have an aluminum lift-up lid with quick release latch. The lid shall be held in the open position with a gas strut to allow for easy access and serviceability.

Controls located in the console conveniently accessible to the driver:

- Transmission shifter

- Pump shift control with OK TO PUMP and PUMP ENGAGED lights

- Remote mirror control

- Illuminated rocker switches to control high idle, Jacob's brake, siren/horn, siren brake, master emergency, and other customer specified components

- 12V power point (if applicable)

Controls located in the console conveniently accessible to the driver and the officer (center):

- Parking brake control with a guard to prevent accidental engagement

Controls located in the console conveniently accessible to the officer:

- Illuminated rocker switches to control customer specified components that are easily reachable to the officer and do not allow for compromise of the driver's view, and eliminate the need for foot switches

- Surface to recess siren head, radio head, or other desired items as space permits

- 12V power point (if applicable)

Driving compartment warning labels shall include:

- HEIGHT OF VEHICLE

- OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION

- DO NOT USE AUXILIARY BRAKING SYSTEMS ON WET OR SLIPPERY ROADS

- EXIT WARNINGS

Additional labels included:

- COMPUTER CODE SWITCH

- ABS CODE SWITCH

- FLUID DATA TAG

- CHASSIS DATA TAG

OVERHEAD CONTROL CONSOLE

An ergonomically designed overhead console shall be provided above the driver and officer, running the full width of the cab. The overhead console shall be constructed from 1/8" aluminum plate and shall be painted with a durable finish to match the inside of the

cab. There shall be seven (7) removable 1/8" smooth aluminum plates with a black wrinkle finish to house switches and other electrical items.

Directly above the driver there shall be two (2) panels with no cutouts, unless otherwise specified by the customer.

There shall be a panel located to the right of the driver that shall be designated for defroster, heat, and air conditioning controls (if specified).

The center overhead panel shall be designated for up to seven (7) door ajar indicators. Upon releasing the apparatus parking brake, one or more of these lights shall automatically illuminate (flash) when any of the following conditions occur that may cause damage if the apparatus is moved: cab or compartment door is open; ladder or equipment rack is not stowed; stabilizer system deployed; any other device has not been properly stowed.

There shall be a panel to the left of the officer as well as two (2) directly above the officer. These panels shall have no cutouts, unless otherwise specified by the customer.

ENGINE WARNING SYSTEM

An engine warning system shall be provided to monitor engine conditions such as low oil pressure, high engine temperature and low coolant level. Warning indication shall include a STOP ENGINE (red) light with audible buzzer activation and a CHECK ENGINE (amber) light

Note: (Some engine configurations may also include a fluid warning light.)

There shall be a master information light bar with 24 lights located across the center of the dash panel that covers up to 24 functions. These are defined under Indicators and Warning Lights above.

PUMP SHIFT MODULE

A pump shift module with indicating lights shall be located within easy reach of the driver. A gear lockup shall be provided to hold the transmission in direct drive for pump operation.

PROGRAMMABLE LOAD MANAGER

Load manager shall have the ability to sequence loads on and off. The Super Node II has twenty-four (24) inputs and twenty-four (24) outputs. Eighteen (18) are positive polarity outputs and six (6) are ground polarity outputs. It shall also be able to establish a 8 priority levels to shedding loads when the vehicle is stationary, starting at 12.8 volts lowest priority load to be shed, then respectively at 12.7, 12.5, 12.3, 12.1, 11.9, 11.5 and never shed volts DC. An output is shed (turned OFF) when the system voltage drops below the designated priority level's shed voltage for thirty (30) seconds. If the voltage has dropped below multiple priority level shed voltages then each higher priority level will shed before the lower priority levels. An output is unshed (turned back ON) when the system voltage rises above the designated priority level's unshed voltage for ten (10) seconds. If the voltage has risen above multiple priority level unshed voltages then each lower priority level will unshed before the upper priority levels.

MASTER SWITCH

All outputs can be tied or not tied to the stage switch. In fire apparatus this switch is typically referred to as the master switch. The state of the stage switch is controlled by Utility Module output memory space 3. When this output is active the stage switch is active. Any output tied to the stage switch will be OFF if the stage switch is not active regardless of the output's multiplex equation. Set an output's to be tied to the stage switch by checking the stage switch box in its "Output Port Load Settings" under the "Settings" tab. The name of the stage switch can be changed from the standard "stage" to anything desired by modifying the text in the "Output Port Load Settings" area.

AUTOMATIC HIGH IDLE ACTIVATION

The Utility Module's high idle request (input memory space 2) is activated when the system voltage drops below the high idle threshold (12.8 volts standard or 25.6 volts if 24 volt load management is enabled) for 8 seconds or longer AND load management has been enabled (Utility Module output memory space 1 is active). The high idle request will remain active as long as the voltage remains below the voltage threshold and for 3 minutes after the system voltage rises above the voltage threshold. High idle can be canceled by activating the Utility Module's high idle cancel (output memory space 0).

HIGH IDLE

The engine shall have a "high idle" switch on the dash that shall maintain an engine RPM of 1,000. The switch shall be installed at the cab instrument panel for activation/deactivation. The "high idle" mode shall become operational only when the parking brake is on and the truck transmission is in neutral.

AUXILIARY POWER POINTS

Two (2) 12-volt 20-ampere auxiliary lighter socket type plug-ins, shall be provided in the cab, one near the driver and one near the officer.

USB POWER POINTS

Two (2) 12-volt dual port USB power points shall be provided in the cab.

CAB ACCESSORY FUSE PANEL

A fuse panel shall be located underneath the rear facing seat on the officer's side. The fuse panel shall consist of six (6) battery hot and six (6) ignition switch circuits. Each circuit shall be capable of 10-ampere 12-volt power and total output of 50-amps. The fuse panel shall be capable of powering accessories such as hand held spotlights, radio chargers, hand lantern chargers and other miscellaneous 12-volt electrical components.

POWER & GROUND STUDS, OVERHEAD COMMAND CONSOLE

There shall be a set three (3) threaded power studs provided in the cab's overhead Command Console for future installation of two-way radios.

The studs shall be wired as follows:

- One (1) 12-volt 60-amp, direct to the battery
- One (1) 12-volt 30-amp controlled by the ignition switch
- One (1) 12-volt 125-amp ground

POWER & GROUND STUDS, LOWER COMMAND CONSOLE

There shall be a set three (3) threaded power studs provided in the cab's lower Command Console for future installation of two-way radios.

The studs shall be wired as follows:

- One (1) 12-volt 60-amp, direct to the battery
- One (1) 12-volt 30-amp controlled by the ignition switch
- One (1) 12-volt 125-amp ground

VEHICLE DATA RECORDER

An Akron / Weldon vehicle data recorder as required by the 2009 edition of NFPA 1901 shall be installed. Vehicle data shall be sampled at the rate of 1 second per 48 hours, and 1 minute per 100 engine hours.

Free software is available to allow the fire department to collect the data as needed.

LIGHTING CAB INTERIOR

Interior lighting shall be provided inside the front of the cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens. One light shall be located over each the officer and driver's position. The lights shall also activate from the open door switch located in each cab doorjamb.

LIGHTING CREW CAB INTERIOR

Interior lighting shall be provided inside the crew cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens shall be provided. The lights shall also activate from the open door switch located in each cab doorjamb.

HEATER/DEFROSTER/AIR CONDITIONER

There shall be a minimum 65,000 cool BTU and 65,000 heat BTU single unit, heater/air conditioner mounted over the engine cover. The unit shall be mounted in center of the cab on the engine hood/enclosure. Unit shall have a shutoff valve at the right side of the frame, next to the engine. Airflow of the heater/air conditioner shall be a minimum 1200 CFM. To achieve maximum cooling, a TM-21 Compressor (10 cu. in.) will be used.

	YES	NO
<p>There shall be a set three (3) threaded power studs provided in the cab's overhead Command Console for future installation of two-way radios.</p> <p>The studs shall be wired as follows:</p> <ul style="list-style-type: none"> • One (1) 12-volt 60-amp, direct to the battery • One (1) 12-volt 30-amp controlled by the ignition switch • One (1) 12-volt 125-amp ground <p><u>POWER & GROUND STUDS, LOWER COMMAND CONSOLE</u></p> <p>There shall be a set three (3) threaded power studs provided in the cab's lower Command Console for future installation of two-way radios.</p> <p>The studs shall be wired as follows:</p> <ul style="list-style-type: none"> • One (1) 12-volt 60-amp, direct to the battery • One (1) 12-volt 30-amp controlled by the ignition switch • One (1) 12-volt 125-amp ground <p><u>VEHICLE DATA RECORDER</u></p> <p>An Akron / Weldon vehicle data recorder as required by the 2009 edition of NFPA 1901 shall be installed. Vehicle data shall be sampled at the rate of 1 second per 48 hours, and 1 minute per 100 engine hours.</p> <p>Free software is available to allow the fire department to collect the data as needed.</p> <p><u>LIGHTING CAB INTERIOR</u></p> <p>Interior lighting shall be provided inside the front of the cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens. One light shall be located over each the officer and driver's position. The lights shall also activate from the open door switch located in each cab doorjamb.</p> <p><u>LIGHTING CREW CAB INTERIOR</u></p> <p>Interior lighting shall be provided inside the crew cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens shall be provided. The lights shall also activate from the open door switch located in each cab doorjamb.</p> <p><u>HEATER/DEFROSTER/AIR CONDITIONER</u></p> <p>There shall be a minimum 65,000 cool BTU and 65,000 heat BTU single unit, heater/air conditioner mounted over the engine cover. The unit shall be mounted in center of the cab on the engine hood/enclosure. Unit shall have a shutoff valve at the right side of the frame, next to the engine. Airflow of the heater/air conditioner shall be a minimum 1200 CFM. To achieve maximum cooling, a TM-21 Compressor (10 cu. in.) will be used.</p>		

The defroster/heater shall be a minimum of 35,000 BTU and shall be a separate unit mounted over the windshield. There shall be eight (8) louvers/diffusers to direct to windshield and door glass. Airflow of the defroster/heater shall be a minimum 350 CFM. The unit shall be painted Zolatone greystone to match the cab ceiling.

The condenser shall be roof mounted and have 65,000 BTU rating. The unit shall include three fan motors. Airflow of the condenser shall be a minimum 2250 CFM. (This roof-mounted condenser shall work at full rated capacity at an idle with no engine heat problems.)

HEATER/DEFROSTER/AIR CONDITIONING CONTROLS

The heater/defroster/air conditioning shall be located in the overhead console in the center of the apparatus cab within reach of the driver and officer. The controls shall be illuminated for easy locating in dark conditions. The controls shall be located in such a way that the driver will not be forced to turn away from the road to make climate control adjustments. Control of all heater/defroster/air conditioning functions for the entire apparatus cab shall be achieved through these controls.

FLOORBOARD HEATING DUCT

There shall be ductwork to the floor of the cab, facing forward to provide heat for the front of cab floor area.

DRIVER/OFFICER VENT TO FACE

There shall be ductwork routed forward towards the driver/officer positions. The vents shall provide a/c to the face of the driver/officer and to the front of cab area.

DEFROSTER DIFFUSER

A molded diffuser made of durable ABS plastic ductwork system shall be provided. It shall be form fitted and shall attach to the cab's overhead defroster unit to provide temperature controlled air to the windshields. Air flow of up to 280 cfm is balanced and directed across the entire windshield for optimum defrosting capability in all types of weather.

TOOL MOUNTING PLATE

There shall be a 3/16" smooth aluminum plate installed on top of the heat/ air conditioning unit for use in mounting of equipment. The plate shall measure approximately 25" wide x 19.5" long and shall be spaced up 1". The mounting plate shall feature beveled edges on the front and rear for a finished appearance. The plate shall be coated with the same finish as the heat/air conditioning unit and shall be secured with screws for easy replacement.

DRIVER'S SEAT

A H.O. Bostrom Tanker 550 ABTS SCBA seat with air suspension shall be provided for the Driver. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall have fore/aft adjustment and shall be upholstered with heavy duty Low Seam Durawear Plus material.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

OFFICER'S SEAT

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed behind the Officer. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

UNDER SEAT STORAGE COMPARTMENT

There shall be a storage area under the officer's seat, accessible from the front through a hinged door with Southco C5 compression lever latch. The door shall be painted with a durable finish to match the inside of the cab and shall be vertically hinged near the engine enclosure.

The storage area shall be approximately 19.5" wide x 14.375" high x 21.75" deep. The lower rear portion of the compartment shall be tapered to accommodate the wheel well and wiring chase. The opening shall be approximately 15.5" wide x 10.5" high.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

CREW SEAT – DRIVER'S SIDE, REAR FACING

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed behind the Driver. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

CREW SEAT – OFFICER’S SIDE, REAR FACING

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed behind the Officer. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

CREW SEAT - DRIVER'S SIDE, FORWARD FACING, INBOARD

A H.O. Bostrom Tanker 500 ABTS SCBA flip-up base seat shall be installed in the Driver's side forward-facing inboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Durawear material, and stiched with a low seam all the way around the base cushion.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

CREW SEAT - OFFICER'S SIDE, FORWARD FACING, INBOARD

A H.O. Bostrom Tanker 500 ABTS SCBA flip-up base seat shall be installed in the Officer's side forward-facing inboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Durawear material, and stiched with a low seam all the way around the base cushion.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

CREW SEAT - DRIVER'S SIDE, FORWARD FACING, OUTBOARD

A H.O. Bostrom Tanker 500 ABTS SCBA flip-up base seat shall be installed in the Driver's side forward-facing outboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

CREW SEAT - OFFICER'S SIDE, FORWARD FACING, OUTBOARD

A H.O. Bostrom Tanker 500 ABTS SCBA flip-up base seat shall be installed in the Officer's side forward-facing outboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

HELMET STORAGE

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

SEAT UPHOLSTERY COLOR

The cab seat upholstery shall be black in color.

SCBA BRACKETS

Each SCBA seat in the cab shall feature an H.O. Bostrom SecureAll self contained breathing apparatus (SCBA) locking system. The seat back shall include a bracket which shall be capable of storing most U.S. and international SCBA brands and sizes while in transit or for storage. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters; adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

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

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

The locking system shall include a release handle integrated into the seat cushion for quick and easy release and to eliminate the need for straps or pull cords which might interfere with other SCBA equipment.

SEAT BELT WARNING SYSTEM

An Akron / Weldon seat belt warning system shall be provided, and shall monitor each seating position. Each seat shall be supplied with a sensor that, in conjunction with the display module located on the dash, shall determine when the seat belt was fastened and if the seat is occupied. An icon shall represent that the seat is properly occupied. An audible and visual alarm shall be activated if the seat is occupied and/or the belt is not fastened in the proper sequence.

CREW SEAT COMPARTMENT

A compartment shall be provided under the forward facing crew seats on the back wall of the cab. Two drop down doors shall be provided on the front face of the compartment.

IN-CAB OVERHEAD STORAGE AREA

An overhead storage area shall be provided at the front of the raised roof portion inside of the cab above the rear-facing crew seats. The full-width storage area shall be approximately 84" wide x 10.5" high x 17" deep and shall have a Zolatone gray/black rubberized, textured finish to match the cab interior. The storage area shall be equipped with aluminum lift-up doors.

IN-CAB OVERHEAD STORAGE AREA

An overhead storage area shall be provided at the rear of the raised roof portion inside of the cab above the forward-facing crew seats. The full-width storage area shall be approximately 84" wide x 10.5" high x 15" deep and shall have a Zolatone gray/black rubberized, textured finish to match the cab interior. The storage area shall be equipped with aluminum lift-up doors.

Provisions shall be made for the installation of customer furnished radio.

ANTENNA MOUNTING

The customer supplied radio antenna shall be installed in the cab roof with the coax cable run to the radio mounting area. The radio location shall be determined at the pre-construction meeting.

ELECTRICAL PROVISION

EXCEPTIONS TAKEN	YES	NO
<p>The locking system shall include a release handle integrated into the seat cushion for quick and easy release and to eliminate the need for straps or pull cords which might interfere with other SCBA equipment.</p> <p><u>SEAT BELT WARNING SYSTEM</u></p> <p>An Akron / Weldon seat belt warning system shall be provided, and shall monitor each seating position. Each seat shall be supplied with a sensor that, in conjunction with the display module located on the dash, shall determine when the seat belt was fastened and if the seat is occupied. An icon shall represent that the seat is properly occupied. An audible and visual alarm shall be activated if the seat is occupied and/or the belt is not fastened in the proper sequence.</p> <p><u>CREW SEAT COMPARTMENT</u></p> <p>A compartment shall be provided under the forward facing crew seats on the back wall of the cab. Two drop down doors shall be provided on the front face of the compartment.</p> <p><u>IN-CAB OVERHEAD STORAGE AREA</u></p> <p>An overhead storage area shall be provided at the front of the raised roof portion inside of the cab above the rear-facing crew seats. The full-width storage area shall be approximately 84" wide x 10.5" high x 17" deep and shall have a Zolatone gray/black rubberized, textured finish to match the cab interior. The storage area shall be equipped with aluminum lift-up doors.</p> <p><u>IN-CAB OVERHEAD STORAGE AREA</u></p> <p>An overhead storage area shall be provided at the rear of the raised roof portion inside of the cab above the forward-facing crew seats. The full-width storage area shall be approximately 84" wide x 10.5" high x 15" deep and shall have a Zolatone gray/black rubberized, textured finish to match the cab interior. The storage area shall be equipped with aluminum lift-up doors.</p> <p>Provisions shall be made for the installation of customer furnished radio.</p> <p><u>ANTENNA MOUNTING</u></p> <p>The customer supplied radio antenna shall be installed in the cab roof with the coax cable run to the radio mounting area. The radio location shall be determined at the pre-construction meeting.</p> <p><u>ELECTRICAL PROVISION</u></p>		

Wiring shall be provided in the cab for the future installation of electrical chargers. The location shall be determined during the pre-construction conference.

HD STEREO

A Jensen HD Stereo AM/FM/WB World Turner shall be provided with four speakers.

COMMUNICATION SYSTEM

A Firecom 5100D four (4) position wired intercom system shall be provided and installed on the apparatus. The system shall service four (4) cab seat positions. The driver and officer shall have radio transmit capabilities. The two crew seats shall have intercom only capabilities.

The system shall include the following components:

- (1) 5100D intercom master station
- (2) UH-51 headsets for driver and officer
- (2) UH-52 headsets for crew
- (4) HM-10 plug modules in the cab
- (1) Mobile radio interface cable as required
- (4) Headset hooks

FIRE PUMP HALE QMAX-200

Fire pump shall be midship mounted. The fire pump shall be of the double suction single stage centrifugal type, carefully designed in accordance with good modern practice.

The pump shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI.

The pump body shall be horizontally split, on a single plane, casing type with removable lower casing for easy removal of the entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in the chassis.

All moving parts in contact with water shall be of high quality bronze or stainless steel. Easily replaceable bronze labyrinth wear rings shall be provided. Discharge passage shall be designed to accomplish uniform pressure readings as the actual pump pressure. The rated capacity of the fire pump shall be 2000 gallons per minute in accordance with NFPA# 1901.

The pump shaft shall be rigidly supported by three bearings for a minimum deflection. One high lead bronze sleeve bearing shall be located immediately adjacent to the impeller (on side opposite the drive unit). The sleeve bearing shall be lubricated by a force fed, automatic lubrication system, pressure balanced to exclude foreign material. The remaining bearings shall be heavy-duty type, deep groove ball bearings in the gearbox and they shall be splash lubricated.

PUMP TRANSFER CASE – G SERIES

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

The gearbox drive shafts shall be heat treated chrome nickel steel input and output shafts shall be at least 2-3/4" in diameter, on both the input and output shafts. They shall withstand the full torque of the engine in both road and pump operating conditions.

The engagement of the pump transmission shall be of such design so as to permit transfer of power from road to pump operation only after vehicle is completely stopped. The pump shift shall be air actuated from the cab and have both a green "Pump Engaged" light, and a green "O.K.-To-Pump" light. A third green light shall be provided on the pump operator's panel for "Throttle Ready".

The pump drive unit shall be cast and completely manufactured and tested at the pump manufacturer's factory.

MECHANICAL PUMP SEAL

The pump seal shall be a maintenance free mechanical pump type seal.

PUMP ANODE

A Hale pump anode kit assembly # 529-0050-00-0 shall be provided and installed in the pump body. A minimum of two (2) anodes shall be installed one (1) in the suction side and one (1) in the discharge side of the pump.

PUMP TEST & CERTIFICATION

The pump shall be tested and certified by Mistras Group, Inc., a third party independent testing agency, in accordance with NFPA 1901. A 3 hour pumping test from draft shall be conducted consisting of 2 hours of continuous pumping at 100% of rated capacity at 150PSI net pump pressure, followed by ½ hour of continuous pumping at 70% of rated capacity at 200PSI net pump pressure, and ½ hour of continuous pumping at 50% of rated capacity at 250PSI net pump pressure). The testing shall also include a pressure control system test, priming system test, vacuum test, a gauge/flowmeter test, and a pumping engine overload test. If the apparatus is equipped with a water tank, the water tank-to-pump test shall also be included.

AUXILIARY COOLER

An auxiliary cooler shall be furnished to provide additional cooling to the engine under extreme pumping conditions. Water from the pump is to be piped to the coils of the heat exchanger allowing the engine fluid to be cooled as required.

PUMP CONNECTIONS

All suction and discharge lines (except pump manifolds) 1" and larger shall be heavy-duty stainless steel pipe. Where vibration or chassis flexing may damage or loosen piping or where a coupling is necessary for servicing, a flexible connection shall be furnished. All lines shall be drained by a master drain valve or a separate drain provided at the connection. All individual drain lines for discharges shall be extended with a 90 degree fitting in order to drain below the chassis frame. All water carrying gauge lines shall utilize nylon tubing.

TANK TO PUMP

The booster tank shall be connected to the intake side of the pump with a check valve. The 3" tank to pump line shall run from a bottom sump into the 3" valve. To prevent damage due to chassis flexing or vibration, a short 3" flexible rubber hose coupling shall be used to connect the tank to the intake valve.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.

TANK FILL

A 2" tank fill line shall be provided, using a quarter turn full flow ball valve controlled from the pump operator's panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the

lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.

PRESSURE GOVERNOR, MONITORING, and MASTER PRESSURE DISPLAY

Fire Research InControl series TGA401 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

Pump discharge; shown with four daylight bright LED digits more than 1/2" high

Pump Intake; shown with four daylight bright LED digits more than 1/2" high

Pressure / RPM setting; shown on a dot matrix message display

Pressure and RPM operating mode LEDs

Throttle ready LED

Engine RPM; shown with four daylight bright LED digits more than 1/2" high

Check engine and stop engine warning LEDs

Oil pressure; shown on a dual color (green/red) LED bar graph display

Engine coolant temperature; shown on a dual color (green/red) LED bar graph display

Transmission Temperature: shown on a dual color (green/red) LED bar graph display

Battery voltage; shown on a dual color (green/red) LED bar graph display.

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

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

High Battery Voltage

Low Battery Voltage (Engine Off)

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

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

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

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

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

INTAKE RELIEF

There shall be a Task Force Tips A1831 intake relief valve installed on the intake side of the pump. The surplus water shall be discharged away from the pump operator and terminate with Male NPT pipe thread. System is field adjustable.

6" PUMP INLET

A 6" diameter suction port with 6" NST male threads shall be provided, on the left side of vehicle. The inlet shall extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.

INTAKE VALVE

A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the

	YES	NO
<p>Low Battery Voltage (Engine Running) High Transmission Temperature Low Engine Oil Pressure High Engine Coolant Temperature Out of Water (visual alarm only) No Engine Response (visual alarm only)</p> <p>The program features shall be accessed via push buttons and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.</p> <p>Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.</p> <p>The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.</p> <p>The pressure governor, monitoring and master pressure display shall be programmed to interface with a Cummins engine.</p> <p><u>INTAKE RELIEF</u></p> <p>There shall be a Task Force Tips A1831 intake relief valve installed on the intake side of the pump. The surplus water shall be discharged away from the pump operator and terminate with Male NPT pipe thread. System is field adjustable.</p> <p><u>6" PUMP INLET</u></p> <p>A 6" diameter suction port with 6" NST male threads shall be provided, on the left side of vehicle. The inlet shall extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.</p> <p><u>INTAKE VALVE</u></p> <p>A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the</p>		

pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.

2.5" LEFT SIDE INLET

A 2.5" gated inlet valve shall be provided on the left side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve shall attach directly to the suction side of the pump with the valve body behind the pump panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

6" PUMP INLET

A 6" diameter suction port with 6" NST male threads shall be provided, on the right side of vehicle. The inlet shall extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.

INTAKE VALVE

A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.

2.5" RIGHT SIDE INLET

EXCEPTIONS TAKEN	YES	NO
<p>pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.</p> <p><u>2.5" LEFT SIDE INLET</u></p> <p>A 2.5" gated inlet valve shall be provided on the left side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve shall attach directly to the suction side of the pump with the valve body behind the pump panel.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.</p> <p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>6" PUMP INLET</u></p> <p>A 6" diameter suction port with 6" NST male threads shall be provided, on the right side of vehicle. The inlet shall extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.</p> <p><u>INTAKE VALVE</u></p> <p>A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.</p> <p><u>2.5" RIGHT SIDE INLET</u></p>		

A 2.5" gated inlet valve shall be provided on the right side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve shall attach directly to the suction side of the pump with the valve body behind the pump panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

3.5" RIGHT SIDE DISCHARGE

A 3.5" gated inlet valve shall be provided on the right side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.

	YES	NO
<p>A 2.5" gated inlet valve shall be provided on the right side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve shall attach directly to the suction side of the pump with the valve body behind the pump panel.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.</p> <p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>3.5" RIGHT SIDE DISCHARGE</u></p> <p>A 3.5" gated inlet valve shall be provided on the right side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.</p>		

THREAD TERMINATION

The above shall terminate with National Standard Threads.

REAR INLET

One 5" gated electric inlet valve shall be provided on the right rear of the apparatus. The inlet shall be controlled from the pump panel. The inlet shall be supplied with chrome plated long handle cap and removable strainer.

INTAKE VALVE

A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.

DISCHARGE #1 - LEFT

The discharge in position #1 on the left side of the apparatus shall include the following features.

A 2.5" discharge shall be provided on the left side of the apparatus.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

	YES	NO
<p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>REAR INLET</u></p> <p>One 5" gated electric inlet valve shall be provided on the right rear of the apparatus. The inlet shall be controlled from the pump panel. The inlet shall be supplied with chrome plated long handle cap and removable strainer.</p> <p><u>INTAKE VALVE</u></p> <p>A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.</p> <p><u>DISCHARGE #1 - LEFT</u></p> <p>The discharge in position #1 on the left side of the apparatus shall include the following features.</p> <p>A 2.5" discharge shall be provided on the left side of the apparatus.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.</p> <p><u>2.5" PRESSURE GAUGE</u></p> <p>An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.</p>		

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #2 - LEFT

The discharge in position #2 on the left side of the apparatus shall include the following features.

A 3" discharge shall be provided on the left side of the apparatus.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Akron model 9323 electric controller located at the operator's panel. Valve position will be displayed on the LCD screen incorporated into the control head.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #3 - RIGHT

The discharge in position #3 on the right side of the apparatus shall include the following features.

A 3" discharge shall be provided on the right side of the apparatus.

VALVE

	YES	NO
<p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>DISCHARGE #2 - LEFT</u></p> <p>The discharge in position #2 on the left side of the apparatus shall include the following features.</p> <p>A 3" discharge shall be provided on the left side of the apparatus.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by an Akron model 9323 electric controller located at the operator's panel. Valve position will be displayed on the LCD screen incorporated into the control head.</p> <p><u>2.5" PRESSURE GAUGE</u></p> <p>An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.</p> <p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>DISCHARGE #3 - RIGHT</u></p> <p>The discharge in position #3 on the right side of the apparatus shall include the following features.</p> <p>A 3" discharge shall be provided on the right side of the apparatus.</p> <p><u>VALVE</u></p>		

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Akron model 9323 electric controller located at the operator’s panel. Valve position will be displayed on the LCD screen incorporated into the control head.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #4 - RIGHT

The discharge in position #4 on the right side of the apparatus shall include the following features.

A 2.5" discharge shall be provided on the right side of the apparatus.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator’s panel. The T-handle position shall be unlocked when squeezed and locked when released.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

2.5" DISCHARGE LEFT REAR

There shall be a 2.5" gated discharge piped to the left rear, adjacent to the hose bed. The discharge shall be installed with proper clearance for spanner wrenches or adapters. Plumbing shall be 2.5" piping and a full flow 2.5" ball valve with the control at the pump operator's panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

FRONT BUMPER DISCHARGE

EXCEPTIONS TAKEN	YES	NO
<p><u>2.5" PRESSURE GAUGE</u></p> <p>An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.</p> <p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>2.5" DISCHARGE LEFT REAR</u></p> <p>There shall be a 2.5" gated discharge piped to the left rear, adjacent to the hose bed. The discharge shall be installed with proper clearance for spanner wrenches or adapters. Plumbing shall be 2.5" piping and a full flow 2.5" ball valve with the control at the pump operator's panel.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.</p> <p><u>2.5" PRESSURE GAUGE</u></p> <p>An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.</p> <p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>FRONT BUMPER DISCHARGE</u></p>		

A 1.5" discharge with 2" plumbing shall be provided at the front bumper. The valve shall be remote controlled at the pump panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DELUGE RISER

A 3" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping shall be rigidly braced. The riser shall be gated and controlled from the pump operators panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

<p>A 1.5" discharge with 2" plumbing shall be provided at the front bumper. The valve shall be remote controlled at the pump panel.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p> <p>The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.</p> <p><u>2.5" PRESSURE GAUGE</u></p> <p>An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.</p> <p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>DELUGE RISER</u></p> <p>A 3" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping shall be rigidly braced. The riser shall be gated and controlled from the pump operators panel.</p> <p><u>VALVE</u></p> <p>The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.</p> <p><u>VALVE ACTUATOR</u></p>		

The valve shall be controlled by an Akron model 9323 electric controller located at the operator's panel. Valve position will be displayed on the LCD screen incorporated into the control head.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

DECK GUN TERMINATION

The deck gun piping shall terminate with NPT threads.

SPEEDLAYS- (3)

Two (2) 1.5" speedlays shall be provided under the top mount console. The piping and valves shall be 2", the swivel shall be 1.5". The valves shall be the "drop-out" style, push/pull controlled from the pump panel. Each compartment shall hold 200 ft. of 1.75" double jacket hose. Both beds shall be of the same dimension.

One (1) 2.5" speedlay hose bed shall be supplied. The piping and valve shall be 2.5", the swivel shall be 2.5". The valve shall be the "drop-out" style, push/pull controlled from the pump panel. Compartment shall hold 200 ft. of 2.5" double jacket hose.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall have a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Innovative Controls T-handle located at the operator's panel. The T-handle position shall be unlocked when squeezed and locked when released.

2.5" PRESSURE GAUGE

An Innovative Controls liquid filled individual line pressure gauge shall be provided. The gauge shall be 2.5" in diameter with white faces and black lettering. The gauge shall have a pressure range of 0-400 psi.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

SPEEDLAY COVER

A vinyl cover shall be provided to enclose the ends of the speedlays.

MASTER PUMP DRAIN

A multiport master drain valve shall be provided and plumbed to multiple locations on the main pump body. The valve assembly shall be clearly marked as the Master Drain.

DRAIN VALVES LIFT UP STYLE

Vertical lift up style, quarter turn style drain valves shall be provided for each suction inlet, or discharge outlet as specified. Each drain shall be clearly marked and color coded to match the corresponding suction or discharge.

FOAM LOGIX 2.1 FOAM PROPORTIONING SYSTEM

The apparatus shall be equipped with an automatic electronically controlled, direct injection, discharge side foam proportioning system. Foam proportioning operation shall be based on direct measurement of water flow, and remain consistent within the specified flows and pressures.

A 12-volt DC powered variable-speed electronic direct-injection foam-concentrate proportioning system with a 2.1-gpm-foam concentrate pump shall be integrated into the apparatus to provide foam proportioning. The pump shall be capable of handling Class A or Class B foam concentrate only and be operated by a full-function panel mounted digital display.

The system shall operate via a paddlewheel flow sensor mounted in a 3-inch stainless steel check-valve manifold that includes a chemical injection point.

The inlet of this stainless steel manifold/check-valve assembly will be connected to the fire pump, and the outlet connected to the foam capable discharge outlet(s) on the fire apparatus, as specified. The flow sensor/stainless-steel foam manifold combination shall be capable of water or foam solution flow rates of 30- to 750-gpm. The foam proportioning system shall be equipped with a panel mounted digital display control unit with a microprocessor that monitors total water flow and foam concentrate pump output to provide the operator preset proportional amount of foam concentrate injected on the discharge side of the fire pump. Total foam concentrate pump concentrate output shall be 2.1 gallons per minute.

	YES	NO
<p><u>THREAD TERMINATION</u></p> <p>The above shall terminate with National Standard Threads.</p> <p><u>SPEEDLAY COVER</u></p> <p>A vinyl cover shall be provided to enclose the ends of the speedlays.</p> <p><u>MASTER PUMP DRAIN</u></p> <p>A multiport master drain valve shall be provided and plumbed to multiple locations on the main pump body. The valve assembly shall be clearly marked as the Master Drain.</p> <p><u>DRAIN VALVES LIFT UP STYLE</u></p> <p>Vertical lift up style, quarter turn style drain valves shall be provided for each suction inlet, or discharge outlet as specified. Each drain shall be clearly marked and color coded to match the corresponding suction or discharge.</p> <p><u>FOAM LOGIX 2.1 FOAM PROPORTIONING SYSTEM</u></p> <p>The apparatus shall be equipped with an automatic electronically controlled, direct injection, discharge side foam proportioning system. Foam proportioning operation shall be based on direct measurement of water flow, and remain consistent within the specified flows and pressures.</p> <p>A 12-volt DC powered variable-speed electronic direct-injection foam-concentrate proportioning system with a 2.1-gpm-foam concentrate pump shall be integrated into the apparatus to provide foam proportioning. The pump shall be capable of handling Class A or Class B foam concentrate only and be operated by a full-function panel mounted digital display.</p> <p>The system shall operate via a paddlewheel flow sensor mounted in a 3-inch stainless steel check-valve manifold that includes a chemical injection point.</p> <p>The inlet of this stainless steel manifold/check-valve assembly will be connected to the fire pump, and the outlet connected to the foam capable discharge outlet(s) on the fire apparatus, as specified. The flow sensor/stainless-steel foam manifold combination shall be capable of water or foam solution flow rates of 30- to 750-gpm. The foam proportioning system shall be equipped with a panel mounted digital display control unit with a microprocessor that monitors total water flow and foam concentrate pump output to provide the operator preset proportional amount of foam concentrate injected on the discharge side of the fire pump. Total foam concentrate pump concentrate output shall be 2.1 gallons per minute.</p>		

Proportioning rate is push-button set by the pump operator on the digital display from 0.1% to 1%, in 0.1% increments.

The digital display panel mounted electronic operator control unit shall provide concentrate injection readout in tenths of a percent while also being able to read water flow, total water flowed and total amount of foam concentrate used. The control shall flash a warning indicating low concentrate in the reservoir to the operator, and shall be able to shut off the concentrate pump to prevent damage to the pump. A bar graph on the control unit shall provide visual indication of system operating capacity and will indicate when capacity is exceeded.

The foam concentrate pump shall be fed concentrate by a non-metallic housing foam concentrate strainer that is equipped with a service shut-off valve.

The unit will be fed 12-volt DC power from the apparatus electrical system, and be equipped with a chassis frame ground strap, per the foam proportioner manufacturer's installation and operating instruction manual.

FOAM TANK

There shall be a 20-gallon foam tank. The tank shall be part of the main booster tank. There shall be a 3" PVC fill tower and cap and a tank vent. There shall be a 1-1/2" flanged outlet and drain valve at the lowest point in the tank.

FOAM REFILL SYSTEM

A Hale EZ Fill foam refill system shall provided and installed. The system shall refill one foam tank.

PANEL FINISH

The panels shall be constructed of brushed stainless steel for maximum protection against abrasion caused during normal use.

ESCUTCHEON PLATES

The pump panel shall be equipped with color-coded removable escutcheon plates around the suction and discharge valves.

COLOR CODING

Each discharge valve control, outlet, and corresponding line gauge shall be color-coded. The color-coding shall be (as applicable):

#1 Pre-Connect - Red

#2 Pre-Connect - Yellow

#3 Pre-Connect - Blue

Front Bumper Line - Orange

Large Diameter Discharge – Yellow with White Border

Left Hose Bed Pre-Connect - Tan

Rear Discharge – Green

Deck Gun – Silver

Inlets – Burgundy

Tank Fill - Lime Green

Tank to Pump – Burgundy

PUMP MODULE FRAMEWORK

The pump module framework shall be painted as specified by the customer at the pre-construction meeting. The paint finish shall be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint shall be the same material used for the finished body and cab.

PUMP FINISH

The fire pump shall be painted as specified by the customer at the pre-construction meeting. The paint finish shall be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint shall be the same material used for the finished body and cab.

PLUMBING FINISH

The plumbing shall be painted as specified by the customer at the pre-construction meeting. All fittings, pipe ends and valve ends shall be properly taped off prior to applying paint. The paint finish shall be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint shall be the same material used for the finished body and cab.

EXTERIOR DUNNAGE AREA

The exterior dunnage panels shall be constructed of brushed stainless steel.

PUMP PANEL LIGHTING, LED

The driver's side pump panel controls and gauges shall be illuminated by a full width white Federal Signal LED light strip, controlled at the pump panel.

PUMP PANEL LIGHTS, LED

Each pump panel shall be illuminated by a full width white Federal Signal LED light strip. The lights shall be mounted in a hood directly above each panel. A switch located at the operator's panel shall activate the lights.

PUMP PANEL ILLUMINATION

One pump panel illumination light shall be activated when the pump is engaged.

PUMP ENGAGED LIGHT

A green light shall be provided on the pump operator's panel that shall illuminate when pump is engaged.

PUMP PANEL GAUGES AND CONTROLS

The following gauges and controls shall be provided at the pump panel:

- Two (2) certified laboratory test gauge outlets.
- Pump primer control.
- Master drain control and additional drains as needed.
- Tank-fill and pump cooler valve controls.
- Tank to pump valve control.
- Pump capacity rating plate.
- All discharge controls.
- Two (2) master pump gauges.
- Gauges on all 1-1/2" and larger discharge lines.
- Officer side pump panel shall have a plumbed water shower head for decontamination. The fire department shall determine the final location of the shower head.

PRIMING SYSTEM

A Trident Model #31.001.3 automatic air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,690 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with 3/4" NPT connection to the fire pump. The primer shall automatically drain when the actuator is closed.

The system shall create vacuum by using air from the chassis air brake system through a three-barrel multi-stage internal "venturi nozzles" within the primer body. The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied 'protected' air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Automatic Primer Control

The 12 volt primer control shall be an “automatic” type, with a pump panel three-way switch to operate an air solenoid valve. The air valve shall direct air pressure from the air brake system to the primer. To prevent freezing, no water shall enter the primer valve control. The primer shall be covered by a five (5) year parts warranty.

One (1) Trident primer for pump panel intakes

One (1) Trident primer for rear intake

COMPRESSION FITTINGS ON AIR SYSTEM

Compression style fittings shall be provided on air lines within the pump module.

AIR HORN BUTTON

A push button switch shall be provided on pump operators panel to activate the air horns.

4.5” MASTER GAUGES

Two (2) 4-1/2” Class 1 master gauges shall be provided. Each gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40-degrees Fahrenheit. The cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area. To prevent internal freezing, and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage. The gauges shall be mounted next to each other adjacent to crosslay area at the right upper section of the pump operator’s panel. The intake gauge shall be to the left of the discharge gauge.

WATER TANK GAUGE

An Innovative Controls weather proof encapsulated (14) super bright LED light indicator shall monitor the water tank level and shall be mounted on the pump operator's panel. The fourteen LED lights are arranged in a "V" pattern for easy identification of liquid level. When the liquid level reaches less than a 1/4 full the refill level begins to flash. The tank-sensing probe shall be chemical resistant PVC with stainless steel sensing wires. The cover plate shall be aluminum sub-plate, black background and blue graphics, with an outdoor exposure rated composite overlay.

WATER TANK GAUGE

Three (3) Whelen PSTANK2 LED strip lights shall be provided. The lights shall be steady burn green, blue, amber and flashing red to indicate water level in the booster tank.

One (1) cab high above rear door each side
 One (1) pump panel

FOAM TANK GAUGE

A Class1 Intelli-Tank foam level gauge shall be provided. The gauge shall feature wide-angle viewing and four (4) ultra-bright LED's for high visibility even in direct sunlight. Foam level sensing shall be through a pressure transducer, and capable of indicating nine (9) accurate levels.

WATER TANK

The tank shall be constructed of PT3™ polypropylene material by United Plastic Fabricating (UPF). This material shall be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from ½ to 1" as required. Internal baffles are generally 3/8" in thickness.

The tank shall be of a specific configuration and shall be designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include PolyProSeal™ technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The top of the booster tank shall be fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" PT3™ polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength as part of the tank's unique Full Floor Design™.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" PT3™ polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a PT3™ polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid. Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4" that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

The tank cover shall be constructed of 1/2" thick PT3™ polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one

of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall accommodate the necessary lifting hardware.

There shall be one (1) sump constructed of a minimum of 1/2" PT3™ polypropylene and be located in the left front quarter of the tank, unless specified otherwise. On all tanks that require a front suction, a 3" schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3" N.P.T. threaded outlet on the bottom for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

There shall be two (2) standard tank outlets: one for the tank-to-pump suction line, which shall be sized to provide adequate water flow to the pump; and, one for tank fill line, which shall be sized according to the NFPA minimum size chart for booster tanks. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 G.P.M. All auxiliary outlets and inlets must meet all NFPA guidelines in effect at the time of manufacture.

The UPF Poly-Tank® III shall rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40 inches, cross member spacing must be decreased to allow for not more than 400 square inches of unsupported area.

The tank shall be isolated from the cross members through the use of hard rubber strips with a minimum thickness and width dimension of 1/4" x 1". The rubber must be installed so it will not become dislodged during normal operation of the vehicle. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both in the front and rear as well as side to side to prevent tank from shifting during vehicle operation.

The tank shall be completely removable without disturbing or dismantling the apparatus structure.

The tank shall be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank shall be weighed empty and full to provide precise fluid capacity. The tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. A center of gravity and weight calculation for both empty and full conditions shall be required with each tank.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from UPF. In applications where the tank will

be subject to severe conditions, the tank may have a warranty unique to the application that is clearly defined for each such application.

WATER TANK SIZE

A 1000 gallon water tank shall be provided.

DIRECT TANK FILL

A 2.5" direct tank fill with a 2.5" valve with a 45 degree elbow is to be installed in the rear of the apparatus.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.

APPARATUS BODY

The body shall be constructed of 3/16" #5052 aluminum sheet, #3003 bright aluminum diamond plate and structural aluminum extrusions. The body shall be of the modular design to allow for proper flexing of the truck chassis. The body shall be custom built and engineered for proper load distribution on the chassis. An insulator material shall be used where aluminum and steel are in contact to prevent corrosion.

The ceilings, sidewalls and floors of the body compartments shall be constructed of 3/16" 5052-H32 smooth aluminum plate with a tensile strength range of 32,000 to 44,000 psi. Continuous 5356 fill welding shall seal compartment panels.

The body framework shall be constructed of custom-designed aluminum alloy 6063-T5 extrusions with a tensile strength of 35,000 psi.

To eliminate "dead space" and to maximize compartment interior space, there shall be no more than 1/4" between outer and inner walls.

The compartment extrusions shall be slotted full-length on backside for uniform fitting of the aluminum plate work that forms the compartment interiors.

The aluminum extrusion profiles shall incorporate 1" x 1-3/4" recessed continuous door seal at the bottom of the compartment. The extrusions shall be designed to allow unobstructed, sweep-out floors in all compartments.

The front, top, and rear surfaces of body shall be covered with .125" bright aluminum diamond treadplate. The forward and rear recessed surfaces shall be flush with the corner extrusions.

The compartment tops shall extend downward over the extrusions and form a drip molding. The material shall be .125 aluminum treadplate with approved aerated service for walking.

The compartment assemblies are to be fastened to the sub-frame with mechanical Huck-type bolts.

The apparatus body shall be a separate module from the pump enclosure and shall not be fastened together in any manner.

Each compartment shall be properly vented with louvers.

REAR STEP COMPARTMENTATION

A1 - There shall be a compartment provided at the rear step. The compartment shall be approximately 40" wide x 40" high x 30-1/2" deep inside. The compartment shall be provided with a roll-up door.

COMPARTMENTATION LEFT SIDE

L1- There shall be a compartment ahead of the rear wheels approximately 43" wide x 66" high x 27-1/4" deep.

L2- There shall be a compartment above the rear wheels, approximately 61-1/2" wide x 36-1/2" high x 27-1/4" deep.

L3- There shall be a compartment behind the rear wheels approximately 53-1/2" wide x 66" high x 27-1/4" deep.

COMPARTMENTATION RIGHT SIDE

R1- There shall be a compartment ahead of the rear wheels approximately 43" wide x 66" high x 27-1/4" deep. The upper portion of the compartment shall be 16" deep to accommodate ladder storage.

R2- There shall be a compartment above the rear wheels approximately 61-1/2" wide x 36-1/2" high x 16" deep.

R3- There shall be a compartment behind the rear wheels approximately 53-1/2" wide x 66" high x 27-1/4" deep. The upper portion of the compartment shall be 16" deep to accommodate ladder storage.

UPPER HATCH COMPARTMENTS

There shall be a compartment located at the top of each body side with lift up doors and pneumatic stays. The compartments shall be approximately 21" wide x 26" high x 162" long. Two (2) lift-up NFPA compliant serrated aggressive diamond plate doors shall be provided on each side, with chrome handles. The tops of the compartments shall be constructed of NFPA compliant embossed aggressive diamond plate.

BODY SUB-FRAME

The chassis shall be fitted with a sub-frame system consisting of a series of steel plate gusseted legs, extending down and out from the chassis frame rails on each side. This system will provide additional structural support to the running boards and side compartments. A heavy-duty rear platform shall be constructed of the same material to support the rear compartments and rear step. The entire assembly will be attached to the chassis frame by a series of heavy-duty U-bolts. Self-supporting bodies will not be acceptable. NO EXCEPTIONS

REAR DOORS UPPER HATCH COMPARTMENTS

The hatch compartments shall include an access door at the rear of the apparatus.

COMPARTMENT INTERIOR - L1

The L1 compartment on the left side of the apparatus shall include the following features:

ADJUSTABLE VERTICAL SLIDE-OUT PANEL

There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.

600# SLIDE-MASTER TRAY

There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".

PAC TRAC TOOL MOUNTING BOARD

A Pac Trac tool mounting board shall be installed on the rear wall of the compartment as specified. The mounting board shall measure approximately 54" wide x 52" high.

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

COMPARTMENT INTERIOR - L2

The L2 compartment on the left side of the apparatus shall include the following features:

ADJUSTABLE SHELF

There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.

TILT DOWN DRAWER

A Slide-Master pull out drawer with 30 degree tilt down feature shall be provided and installed in the compartment. The drawer shall have a distributed load capacity of 250 lbs. and be capable of extending 90% of it's depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

COMPARTMENT INTERIOR - L3

The L3 compartment on the left side of the apparatus shall include the following features:

ADJUSTABLE VERTICAL SLIDE-OUT PANEL

There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.

PAC TRAC TOOL MOUNTING BOARDS

A Pac Trac tool mounting board shall be installed on both the left and right side walls of the compartment as specified.

	YES	NO
<p>There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".</p> <p><u>PAC TRAC TOOL MOUNTING BOARD</u></p> <p>A Pac Trac tool mounting board shall be installed on the rear wall of the compartment as specified. The mounting board shall measure approximately 54" wide x 52" high.</p> <p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>COMPARTMENT INTERIOR - L2</u></p> <p>The L2 compartment on the left side of the apparatus shall include the following features:</p> <p><u>ADJUSTABLE SHELF</u></p> <p>There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.</p> <p><u>TILT DOWN DRAWER</u></p> <p>A Slide-Master pull out drawer with 30 degree tilt down feature shall be provided and installed in the compartment. The drawer shall have a distributed load capacity of 250 lbs. and be capable of extending 90% of it's depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".</p> <p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>COMPARTMENT INTERIOR - L3</u></p> <p>The L3 compartment on the left side of the apparatus shall include the following features:</p> <p><u>ADJUSTABLE VERTICAL SLIDE-OUT PANEL</u></p> <p>There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.</p> <p><u>PAC TRAC TOOL MOUNTING BOARDS</u></p> <p>A Pac Trac tool mounting board shall be installed on both the left and right side walls of the compartment as specified.</p>		

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

COMPARTMENT INTERIOR - R1

The R1 compartment on the right side of the apparatus shall include the following features:

ADJUSTABLE VERTICAL SLIDE-OUT PANEL

There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.

PAC TRAC TOOL MOUNTING BOARDS

A Pac Trac tool mounting board shall be installed on both the left and right side walls of the compartment as specified.

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

COMPARTMENT INTERIOR - R2

The R2 compartment on the right side of the apparatus shall include the following features:

ADJUSTABLE SHELF

There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

COMPARTMENT INTERIOR - R3

The R3 compartment on the right side of the apparatus shall include the following features:

ADJUSTABLE VERTICAL SLIDE-OUT PANEL

EXCEPTIONS TAKEN	YES	NO
<p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>COMPARTMENT INTERIOR - R1</u></p> <p>The R1 compartment on the right side of the apparatus shall include the following features:</p> <p><u>ADJUSTABLE VERTICAL SLIDE-OUT PANEL</u></p> <p>There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.</p> <p><u>PAC TRAC TOOL MOUNTING BOARDS</u></p> <p>A Pac Trac tool mounting board shall be installed on both the left and right side walls of the compartment as specified.</p> <p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>COMPARTMENT INTERIOR - R2</u></p> <p>The R2 compartment on the right side of the apparatus shall include the following features:</p> <p><u>ADJUSTABLE SHELF</u></p> <p>There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.</p> <p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>COMPARTMENT INTERIOR - R3</u></p> <p>The R3 compartment on the right side of the apparatus shall include the following features:</p> <p><u>ADJUSTABLE VERTICAL SLIDE-OUT PANEL</u></p>		

There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.

TILT DOWN DRAWER

A Slide-Master pull out drawer with 30 degree tilt down feature shall be provided and installed in the compartment. The drawer shall have a distributed load capacity of 250 lbs. and be capable of extending 90% of it's depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".

600# SLIDE-MASTER TRAY

There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".

PAC TRAC TOOL MOUNTING BOARDS

A Pac Trac tool mounting board shall be installed on both the left and right side walls of the compartment as specified.

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

COMPARTMENT INTERIOR - A1

The A1 compartment on the rear of the apparatus shall include the following features:

COMPARTMENT MATTING

Turtle Tile interlock matting material shall be provided in the compartment.

UNISTRUT

Each compartment shall come equipped with 1.625" x .875" x .125" aluminum Unistrut channel. The Unistrut shall be securely fastened to the interior walls of the compartment.

ROLL-UP COMPARTMENT DOORS

The apparatus body shall be equipped with R.O.M Robinson Shutter doors. The door slats shall be double wall box frame, manufactured from anodized aluminum with a satin finish. The doors shall have the following features:

- Manufactured wholly in the United States.

	YES	NO
<p>There shall be an adjustable vertical slide-out tool board with a 250 lb. capacity supplied and mounted on unistrut tracks. Extra compartment lights shall be provided and located as needed to properly illuminate the compartment.</p> <p><u>TILT DOWN DRAWER</u></p> <p>A Slide-Master pull out drawer with 30 degree tilt down feature shall be provided and installed in the compartment. The drawer shall have a distributed load capacity of 250 lbs. and be capable of extending 90% of it's depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".</p> <p><u>600# SLIDE-MASTER TRAY</u></p> <p>There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".</p> <p><u>PAC TRAC TOOL MOUNTING BOARDS</u></p> <p>A Pac Trac tool mounting board shall be installed on both the left and right side walls of the compartment as specified.</p> <p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>COMPARTMENT INTERIOR - A1</u></p> <p>The A1 compartment on the rear of the apparatus shall include the following features:</p> <p><u>COMPARTMENT MATTING</u></p> <p>Turtle Tile interlock matting material shall be provided in the compartment.</p> <p><u>UNISTRUT</u></p> <p>Each compartment shall come equipped with 1.625" x .875" x .125" aluminum Unistrut channel. The Unistrut shall be securely fastened to the interior walls of the compartment.</p> <p><u>ROLL-UP COMPARTMENT DOORS</u></p> <p>The apparatus body shall be equipped with R.O.M Robinson Shutter doors. The door slats shall be double wall box frame, manufactured from anodized aluminum with a satin finish. The doors shall have the following features:</p> <ul style="list-style-type: none"> • Manufactured wholly in the United States. 		

- Concave individual slat design to prevent loose equipment from hindering door operation.
- Co-Extruded stretch resistant inner seal between slats to prevent metal-to-metal contact and inhibit moisture and dust penetration.
- Interlocking swaged/dimpled end shoes shall be utilized to provide a tight fitting assembly and allow for easy removal in the event of damage.
- Effective counter balancing for ease of lifting and lowering the doors.
- One-piece side rail and track to provide an unobstructed slide area and reduce the risk of binding.
- Non-abrasive replaceable water and dust barrier to keep compartment equipment clean and dry.
- A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.
- A full width positive latch bar shall be operable with one hand, even with heavy gloves.

A door open indicator light shall be provided in the cab.

A 3M clear protective material shall be provided along the outer edge of the compartment floor to protect this area from scratches that could occur when installing or removing equipment from the compartments.

REAR COMPARTMENT DOOR

The rear compartment door shall be equipped with ROM brand roll-up door in a satin finish.

COMPARTMENT LIGHTING

Each compartment shall be equipped with two (2) white ROM LED light strips which shall provide a consistent pattern to illuminate to entire compartment.

HOSE BED

The hose bed shall be provided with aluminum slatted flooring radiused at the edges to prevent hose damage from sharp edges. Each hose bed floor section shall be removable for easy access to the water tank.

HOSE BED COVER

An aluminum two-piece, hinged hose bed cover constructed of .125" aluminum diamond plate and square aluminum extrusion shall be provided for the main hose bed.

HOSE BED DIVIDER

The hose bed shall be divided by a 3/16" aluminum partition that is fully adjustable by sliding in tracks located at the front and rear of the hose bed. The divider shall be located as needed.

HOSEBED SUPPORTS

The taller hosebed dividers shall have a support to tie it into the hosebed door support bar at the rear of the hosebed. Supports shall be adjustable along the length of the door support bar.

HOSEBED LIGHTING

The hosebed shall be illuminated by a white Federal Signal LED light strip.

BODY HANDRAILS

Handrails shall be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges shall be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail shall have 90 degree returns to flanges. The ends of grab rail shall pass through the flanges and be welded to form one structural unit. The handrails, shall be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange. Sufficient space shall allow for a gloved hand to firmly grip the rail. The rails shall be located in the following areas:

(Note: These are in addition to those previously mentioned in the cab section):

There shall be one (1) vertical handrail at rear of the body one each side of the rear compartment.

There shall be two (2) handrails mounted horizontally, above the pump panel, one (1) on each side as large as possible.

STEPS

There shall be up to five (5) Innovative Control fold-down steps with integrated step lights mounted on each side of the front face of body to provide access to the top of the pump module and dunnage area.

The rear of the body shall be equipped with fixed steps. The bottom step shall measure 14" x 11" to provide a stable footing position. Each additional step above shall measure 14" x 8" for clearance while climbing. Thinly fabricated aluminum steps shall not be utilized.

The quantity and location of steps and handrails shall meet the Current NFPA 1901 pamphlet in effect at the time the apparatus is ordered.

REAR ACCESS LADDER

There shall be a ladder located at the driver's side rear of the apparatus to access the top of the vehicle body. The ladder shall be a swing-out and fold-down type. The ladder shall be constructed of 1/8" formed stainless steel and shall be 16.5" wide. Each step shall be 3.25" deep x 16" wide with a perforated non-skid stepping surface. The ladder shall be held in the closed and open positions with two (2) gas struts.

INTERMEDIATE REAR STEP

There shall be one (1) full width treadplate rear step, 8" deep, provided at the rear of the apparatus above the rear step compartment and below the hose bed.

RUB RAILS

The body shall be equipped with anodized aluminum channel style rub rails at the sides. Rub rails shall be spaced away from the body by 1/2" polymer spacers. The rub rails shall be polished to a bright finish.

ALUMINUM TREADPLATE

All load bearing aluminum treadplate running boards shall be .155 thick bright-annealed finish. Running boards and rear step edges shall be flanged down for added strength. Running boards shall also be flanged up to form kick plates. All non-load bearing aluminum shall be .125" thick bright annealed finish. In areas where aluminum treadplate shall function as a load-bearing surface, there shall be a heavy steel sub-structure. This structure shall consist of 3" channel and 1-1/2" angle welded support. This shall assure that there shall be no flexing or cracking of running boards. The aluminum shall be insulated from the steel by closed cell foam body barrier material.

Treadplate locations:

1. Skirting around front bumper.
2. The step at the cab entrance.
3. The jump seat steps.
4. The body header.
5. The running boards.
6. The rear step.
7. The top of the compartments.
8. The rear of the apparatus.
9. The rear fenders.

REAR STEP CORNES

The rear step corners shall form a 90 degree angle, and a cast corner cap with reflective makers shall be installed on each corner.

SCBA CYLINDER COMPARTMENTS

There shall be four (4) spare breathing air cylinder compartments recessed in the rear fender wells, two (2) left and two (2) right. The compartments shall have brushed stainless doors equipped with a weather resistant flush fitting thumb latch. The interior of the door shall incorporate a rubber seal to keep the compartment free of road debris and moisture. The interior compartment shall be constructed of a high-density polyethylene plastic.

SUCTION HOSE

Three (3) 10 ft. lengths of 6" lightweight (KOCHEK) fire department hard suction hose with lightweight long handle couplings and pin lug male couplings shall be provided.

STRAINER

A 6" Kochek barrel strainer shall be provided.

SUCTION HOSE

An additional two (2) 10-foot length of 6" hard suction hoses shall be provided.

GROUND LADDERS

The apparatus shall be equipped with heavy duty, box type "I" beam rail, ground ladders. The ladders shall meet the requirements of NFPA 1931 to ensure proper design and that sufficient strength is available for the service intended. The ground ladders shall be constructed of aluminum with non-welded, field replaceable rung to rail connections to simplify field repairs and removable plated steel butt spurs for added strength. A full 1/2", non-rotting, poly rope shall be provided for easy ladder operation.

One (1) Alco-Lite PEL-24 24 ft. two-section aluminum extension ladder.

One (1) Alco-Lite PRL-14 14 ft. aluminum roof ladder.

The ladders shall have lifetime Warranty against manufacturing defects.

ATTIC LADDER

One (1) 10-foot Duo-Safety 701-10 Fresno attic ladder shall be provided and mounted.

DUAL ARM LADDER RACK

The fire departments specified ladders shall be mounted on a dual arm ladder rack.

LICENSE PLATE BRACKET

A Cast Products LP0013 cast aluminum license plate bracket with LED light shall be provided at the rear of the apparatus.

BODY ELECTRIC SYSTEM

All body electrical wiring in the chassis will be XLP cross link-insulated type. Wiring is to be color-coded and include function codes every three (3) inches. Wiring harnesses will be routed in protective, heat resistant loom, securely and neatly installed. Two power distribution centers will be provided in central locations for greater accessibility. The power distribution centers contain automatic thermal self-resetting breakers, power control relays, flashers, diode modules, daytime driving light module, and engine and transmission data links. All breakers and relays are utilized in circuits which amp loads are substantially lower than the respective component rating thus ensuring long component life. Power distribution centers will be composed of a system of interlocking plastic modules for ease in custom construction. The power distribution centers are function oriented. The first is to control major truck function and the second controls overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers also have accessory breakers and relays for future installations. All harnesses and power distribution centers will be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces will be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points will be mounted in accessible locations. Complete chassis wiring schematics will be supplied with the apparatus.

The wiring harness contained on the chassis shall be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. The wiring shall be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring shall be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).

All harnesses shall be covered with moisture resistant loom with a minimum rating of 300 Degrees Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable has a minimum rating of 289 degree Fahrenheit.

All harnesses are securely installed in areas protected against heat, liquid contaminants and damage. The harness connections and terminations use a method that provides a positive mechanical and electrical connection and are in accordance to the device manufacturer's instructions. No connections within the harness utilize wire nut, insulation displacement, or insulation piercing.

All circuits conform to SAE1292. All circuits are provided with low voltage over current protective devices. These devices are readily accessible and protected against heat in excess

of component rating, mechanical damage, and water spray. Star washers are not used for ground connections.

BACK-UP ALARM

An Ecco model SA917 automatic self-adjusting electronic back-up alarm producing 87-112 db shall be installed at the rear between the frame rails. It shall operate whenever the transmission's reverse gear is selected.

STOP/TAIL/TURN/REVERSE LIGHTS

The rear stop/tail/turn/reverse lights shall be Whelen 600 series lights individually installed in chrome plated bezels each side on the rear of the apparatus body. The stop/tail lights shall be LED model 60BTT located in the top position. The amber arrow turn signals shall be LED model 60A00TAR located below the stop/tail lights. The reverse lights shall be LED model 60C00WCR (maximum intensity) located below the turn signals.

LED ICC/MARKER LIGHTS

LED type ICC/marker lights shall be provided to meet D.O.T. requirements.

STEP LIGHTS

The pump module running board area shall be illuminated by Whelen 2G 4" diameter LED lights mounted one each side on the front of the body in chrome flanges.

LED strip lighting or individually mounted lights shall be provided at the rear of the body to illuminate all stepping surfaces based on the body style.

GROUND LIGHTING

The apparatus shall be equipped with lighting capable of illumination to meet NFPA requirements. Lighting shall be provided at areas under the driver and crew riding area exits and shall be automatically activated when the exit doors are opened. The ground lights shall be Truck-lite® LED model #44042C. Lighting required in other areas such as work areas, steps and walkways shall be activated when the parking brake is applied, provided the ICC lights are on.

REAR WORK LIGHTS

Two (2) Rigid Industries D2 Diffusion LED flood lights shall be provided. One (1) shall be mounted on each side on the upper rear of the apparatus body. The lights shall be activated by a switch inside the cab near the driver.

OPTICAL WARNING SYSTEM

The optical warning system shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way and the other mode shall signal that the apparatus is stopped and is blocking the right-of-way.

A momentary rocker switch shall be provided near the driver and labeled Master Emergency to energize all of the optical warning devices provided. A secondary momentary rocker switch shall be provided near the officer. All lights shall operate at not less than the minimum flash rate per minute as specified by NFPA.

UPPER LEVEL WARNING DEVICES

The upper level shall be divided into zones A (front), B (officer's side), C (rear) and D (driver's side).

Zone A (front) shall have one (1) Whelen Freedom IV 72" Model F4N7QLED light bar, with fourteen (14) LED modules. The light bar shall have two (2) end red LED modules, two (2) corner red LED modules, eight (8) forward-facing red LED modules and two (2) forward-facing white LED modules. The light bar shall have all clear outer lenses. The light bar shall be installed on the cab roof as far forward as possible with two (2) MK8H 5" cast aluminum risers.

Zone B (officer's side) shall be covered by the module from the light bar and the side-facing warning light.

Zone C (rear) shall have four (4) Whelen 900 series model 90**5F*R LED warning lights installed on the upper rear of the apparatus. The lights shall be installed one (1) each side on the upper rear surface of the body (rear-facing) and one (1) each side on the driver and officer sides of the body in the upper rear corners (side-facing).

Zone D (driver's side) shall be covered by the module from the light bar and the side-facing warning light.

LOWER LEVEL WARNING DEVICES

The lower level shall be divided into zones A (front), B (officer's side), C (rear) and D (driver's side).

Zone A (front) shall have four (4) Whelen 600 series model 60*02F*R Super LED warning lights.

The lights shall be installed two (2) each side on the front of the cab in the warning light housings.

Zone B (officer's side) shall have two (2) Whelen 600 series model 60*02F*R Super LED warning lights and one (1) Whelen ION T-Series TLI* Super LED warning light.

The lights shall be installed one (1) near the front corner of the apparatus, one (1) near the rear axle, and one (1) near the rear corner of the apparatus.

Zone C (rear) shall have two (2) Whelen 600 series model 60*02F*R Super LED warning lights installed one (1) each side on the lower rear of the apparatus.

Zone D (driver's side) shall have two (2) Whelen 600 series model 60*02F*R Super LED warning lights and one (1) Whelen ION T-Series TLI* Super LED warning light.

The lights shall be installed one (1) near the front corner of the apparatus, one (1) near the rear axle, and one (1) near the rear corner of the apparatus.

ADDITIONAL WARNING LIGHT BARS

There shall be (2) additional Whelen Freedom IV 21" LED light bars, Model F4MINI, each with five (5) LED modules. Each light bar shall have one (1) end red LED module, two (2) corner red LED modules, and two (2) forward-facing white LED modules. The light bars shall have all clear outer lenses. The light bars shall be installed on the cab roof each with two (2) MK8H 5" cast aluminum risers.

BROW MOUNTED LED SCENE LIGHT

One (1) Fire Research Spectra SPA811-Q20 brow mounted LED scene light shall be provided. The lamp head shall operate at 12 volts DC, draw 18 amps, and generate 20,000 lumens of light. The light shall be mounted at the front brow of the cab and shall be controlled from a switch in the cab.

SURFACE MOUNTED LED SCENE LIGHTS (8)

Eight (8) Fire Research Spectra SPA260-Q20 surface mounted LED scene lights shall be provided. The lamp head shall operate at 12 volts DC, draw 14 amps, and generate 20,000 lumens of light. The light shall be mounted at a fire department specified location and shall be controlled from a switch in the cab.

CORROSION REDUCTION POLICY

The manufacturer shall have in place a formal corrosion reduction program and assembly procedures designed for reducing and eliminating the possibility of corrosion. It is understood that fire apparatus will operate in harsh environments. At the time of the bid the apparatus manufacturer shall show proof of a corrosion policy. Failure to submit this information could be grounds for rejection. If a formal policy is not in place explain in your bid how your firm will take the necessary steps for corrosion reduction. There will be no exception to this requirement.

In addition to a formal program the manufacture shall show proof of testing corrosion reduction processes to ASTM B117. A copy of recent test shall be included in the bid.

Frame Rails

The chassis frame rails shall be coated with a high performance, two component, reinforced inorganic zinc rich primer with a proven cathodic protection makeup preferably Cathacoat 302HB. The surface shall be clean and free of all salts, chalk and oils prior to application. Were the primer has been broken during the frame assembly process the area shall be touch up to reestablish the seal. Prior to finish paint a second primer Devran 201 shall be applied. Once the assembly of the frame is complete and the second primer is applied the entire assembly shall be covered with high quality top coat paint preferably Imron 5000 or equal. The manufacturer shall submit with the bid a copy of the product brochure and or description of the primer to be used.

Electro Plating

Steel and Iron brackets such as the pump module bracket shall be Zinc plated to protect against corrosion. Plating shall be in accordance with ASTM B663. The apparatus manufacturer shall list all components with plating.

Fasteners

In any area that a stainless steel screw or bolt head is to come in contact with aluminum or steel, painted or non-painted, the fastener shall have the underside of the head pre-coated with nylon. The nylon coating shall act as a barrier between the fastener head and the metal or painted surface.

Screw or bolt taped into the metal shall be pre-coated with a Threadlocker type material pre-applied on the threads.

When bolting together stainless steel the manufacturer shall use a pan-head bolt with nylon coating under the head, a stainless washer with a rubber backing, and a Stover flange nut to secure the bolt.

When mounting aluminum components such as a step to the apparatus body. The manufacturer shall use stainless washers with rubber backing. All mounted components shall a barrier material between the two surfaces.

All rivet type fasteners shall be of the same material being secured.

Whenever possible, pre-drill and tap all holes for mounting components such as lights, steps and hand rails prior to the paint process to reduce the corrosion opportunity. If a hole must be drilled into a previously painted surface, re-establish the paint barrier around the hole and use a flange-type nutsert with a gasket under the flange.

Where possible, minimize the number of stainless trim screws in aluminum. Structural tape and or adhesive shall be used were possible for mounting trim to the body or cab.

If a pre-treated screw or bolt is not available, hand apply Dynatex Boltlocker or Theadlocker on the threads of the screw, bolt or nutsert. This will help seal threads from moisture and help prevent the fasteners from loosening.

If lubricant is used when tapping the hole, clean out the lubricant and the shavings before applying blue Threadlocker into the hole.

Barrier Tape

Barrier tape shall be used on the backsides of all lights, trim pieces, or other components when bolting them to the apparatus; also when attaching stainless steel over an aluminum surface or when attaching aluminum treadplate to the stainless steel. All instances of dissimilar metals contacting each other require the addition of barrier tape between the metals where contact is made.

Before applying the tape, be sure the metal surface is clean from oil or dirt by cleaning the surface with a 50/50 mix of alcohol and water pr similar solvent.

Gaskets

Gaskets shall be used under all snaps, loops and fasteners for such items as for hose bed covers. Reestablish paint seal around the mounting hole edges after drilling.

Mounting with Threadlocker coating shall be used.

Flat washers with rubber backing shall be used behind all lights that have stainless screws.

Rollup Doors

1 3/4" X 1/16" barrier tape shall be used on the frame opening to act as barrier between the aluminum door rail and the painted door opening surface.

Use a paint stick around the holes after drilling and tapping. In mounting the rails, use screws with the nylon under the head and Threadlocker on the threads for mounting the doorframes. Install barrier tape to the painted surface where the trim is located on top of the door opening.

Hinged Doors

Barrier tape shall be applied to the painted surface of the body and on the painted hinge side of the door.

On the hinge side, mount tape out toward the edge to space over the barrel of the hinge, being sure to not touch the door.

Make sure the hinge fits into the extrusion frame with no corner weld beads interfering with the door fit. Do not put the hinge in a bind or cause the stainless steel hinge to touch the aluminum. Install the doors using a truss head bolt with the nylon coating under the head and Threadlocker on the threads.

Painting Steel

The manufacturer shall wipe any oil residue dry, remove any rust and remove weld slag or smoke. Clean the surface with solvent before painting. Prime with one even coat of black Color primer, and then spray a topcoat over the primer for the finish coat. After bolts are tightened to the proper torque, touch up the bolt area and ends of the bolts with primer or cold galvanizing coating.

Mounting Emergency Lights and Options

All emergency lights, accessory mountings, Kussmaul covers, and 110 outlet boxes mounted to the body should be mounted with pre-coated Threadlocker and nylon under the head screws or bolts to minimize corrosion between dissimilar metals.

Electrical Grounding

Grounding straps shall be installed consisting of a minimum 2-gauge strap bolted to the chassis frame.

A ground cable from the cab to the right side frame rail

From the alternator to the right side frame rail

From the pump module frame to the right side truck frame.

Aerials: from the hydraulic and pump module framework.

From the pump mount to the truck frame rail.

From the body module to the right side truck frame.

Proper grounding will help eliminate ground loop problems throughout the truck, reducing the possibility for electrolysis and corrosion to occur. Provide clean connection points on all ground connections, (remove paint where applicable), and spray or brush on electrical sealer as necessary.

When installing foam system pump wiring the power must come from a dedicated breaker to a power solenoid, and then to the power terminal provided by FoamLogix or FoamPro. Pay particular attention to the grounding detail for wire size and good grounding practice, including removing the paint at the point of ground attachment to the chassis. Keep the length of ground wire as short as practically possible.

SALT SPRAY TESTING

Salt spray test shall be used to confirm the relative resistance to corrosion of coated and uncoated metallic specimens, when exposed to a salt spray climate at an elevated temperature. Test specimens shall be placed in an enclosed chamber and exposed to a continuous indirect spray of neutral (pH 6.5 to 7.2) salt water solution, which falls-out on to the specimens at a rate of 1.0 to 2.0 ml/80cm²/hour, in a chamber temperature of +35C. This climate shall be maintained under constant steady state conditions.

Method

Salt fog testing shall be performed by placing samples in a test cabinet that has been designed in accordance with Paragraph 4 (Apparatus) of ASTM B117 and operated in accordance with Paragraph 10 (Conditions) of ASTM B117.

A 5% salt solution, prepared by dissolving sodium chloride into water that meets the requirements of ASTM D1193 Specification for Reagent Water, Type IV is supplied to the chamber. At the time the samples are placed into test, the cabinet should be pre-conditioned to the operating temperature of 35°C and fogging a 5% salt solution at the specified rate. The fog collection rate is determined by placing a minimum of two 80 sq. cm. funnels inserted into measuring cylinders graduated in ml. inside the chamber. One collection device shall be located nearest the nozzle and one in the farthest corner.

Orientation

Unless otherwise agreed upon, the samples are placed at a 15-30 degree angle from vertical or tested in the "installed" position. This orientation allows the condensation to run down the specimens and minimizes condensation pooling. Overcrowding of samples within the cabinet should be avoided. An important aspect of the test is the utilization of a free-falling mist, which uniformly settles on the test samples. Samples should be placed in the chamber so that condensation does not drip from one to another.

Test durations

Test durations shall be 500 hours except for sample rotation and daily monitoring of collection rates, the cabinet should remain closed for the duration of the test.

PAINTING

All exposed metal surfaces not chrome plated, polished stainless steel or bright aluminum tread plate shall be thoroughly cleaned and prepared for painting. All irregularities in painted surfaces shall be rubbed down and all seams shall be caulked before the application of the finish coat.

All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure finish paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly. Both aluminum and steel surfaces to be painted shall be primed with a two (2)-component primer which is compatible with the finish coat. The apparatus shall be finish painted with a polyurethane base/clear system. "No Exception"

A barrier gasket/washer of "High Density Closed Cell Urethane Foam" shall be used behind all lights, handrails, door hardware and any miscellaneous items such as stainless steel snaps, hooks, washers and acorn nuts. The gaskets/washers shall be coated with pressure sensitive acrylic adhesive. All screws used to penetrate painted surfaces shall be pre-treated/coated under the head with nylon and the threads shall have pre-coat #80. This procedure shall be strictly adhered to for corrosion prevention and damage to the finish painted surfaces.

The following paint process shall be utilized:

Surface Preparation:

1. Wash surface thoroughly with mild detergent.
2. Clean and de-grease with Prep-Sol 3812S.
3. Sand and feather edge using 400 grit or finer on a dual action sander.
4. Remove sanding dust with a cleaner compatible with polyurethane base coat/clear coat final finish.

Substrate treatment:

1. Use a Metal Conditioner followed with a Conversion Coating product.

Priming:

1. Use a priming 615S pretreatment.
2. Use a self etching primer applied to achieve a 1.5 mil dft minimum.
3. Use Prime N Seal sealer compatible with polyurethane base coat.

Color Coat:

1. Apply polyurethane base coat 1-2 mil dft minimum.

Clear coat:

1. Apply polyurethane clear coat 2 mil dft minimum.

SINGLE TONE PAINT

A single paint color shall be provided for the apparatus.

PAINTED FRAME

The frame rails and body subframe shall be painted glossy black.

AIR CONDITIONING CONDENSER

The air conditioning condenser shall be painted to match the cab roof.

LETTERING

Forty (40) 3" 22KT Gold laminate goldleaf letters, with left hand shading and right hand outline to equal 3-5/8" letter, shall be provided.

Customer supplied fire department emblems shall be installed on the cab doors, one each side.

STRIPING

A 6" Scotchlite stripe shall be provided across the front of the cab and along each side of the apparatus.

"Z" STRIPE

The Scotchlite stripe shall be a one-piece "Z" type on the cab sides and continuing straight along each side of the apparatus.

An additional 1" Scotchlite stripe shall be provided.

CHEVRON STRIPING, REAR BODY OUTBOARD, ORAFOL REFLEXITE

The apparatus shall have 6" red and yellow reflective Orafol Reflexite Chevron style striping affixed to the outboard rear body panels. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.

MISCELLANEOUS EQUIPMENT FURNISHED

1 pt. touch-up paint

A bag of stainless steel nuts and bolts, as used in the construction of the apparatus.

WHEEL CHOCKS

Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders shall be provided. The wheel chocks shall be located in an area close to the rear axles easily accessible from the side of the apparatus.

PIKE POLE STORAGE

Three (3) storage tubes shall be recessed in the upper right corner of the driver's side body for pike pole storage. A spring-loaded clip shall be installed near each tube to secure the head of a standard pike pole.

PIKE POLE & FOLDING LADDER COMPARTMENT

A compartment shall be provided behind the right side upper compartments above the ladder storage compartment. The compartment shall have three (3) tubes to accommodate standard pike poles and an enclosed chute for the 10' folding ladder.

A smooth aluminum door with chevron striping and 1/4-turn latch shall enclose the ladders at the rear.

	YES	NO
<p>A 6" Scotchlite stripe shall be provided across the front of the cab and along each side of the apparatus.</p> <p><u>"Z" STRIPE</u></p> <p>The Scotchlite stripe shall be a one-piece "Z" type on the cab sides and continuing straight along each side of the apparatus.</p> <p>An additional 1" Scotchlite stripe shall be provided.</p> <p><u>CHEVRON STRIPING, REAR BODY OUTBOARD, ORAFOL REFLEXITE</u></p> <p>The apparatus shall have 6" red and yellow reflective Orafol Reflexite Chevron style striping affixed to the outboard rear body panels. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.</p> <p><u>MISCELLANEOUS EQUIPMENT FURNISHED</u></p> <p>1 pt. touch-up paint</p> <p>A bag of stainless steel nuts and bolts, as used in the construction of the apparatus.</p> <p><u>WHEEL CHOCKS</u></p> <p>Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders shall be provided. The wheel chocks shall be located in an area close to the rear axles easily accessible from the side of the apparatus.</p> <p><u>PIKE POLE STORAGE</u></p> <p>Three (3) storage tubes shall be recessed in the upper right corner of the driver's side body for pike pole storage. A spring-loaded clip shall be installed near each tube to secure the head of a standard pike pole.</p> <p><u>PIKE POLE & FOLDING LADDER COMPARTMENT</u></p> <p>A compartment shall be provided behind the right side upper compartments above the ladder storage compartment. The compartment shall have three (3) tubes to accommodate standard pike poles and an enclosed chute for the 10' folding ladder.</p> <p>A smooth aluminum door with chevron striping and 1/4-turn latch shall enclose the ladders at the rear.</p>		

OPERATION AND SERVICE MANUALS

Complete "Operation and Service" manuals shall be supplied with the completed apparatus, one (1) printed copy and one (1) CD. Service manual instructions shall include service, maintenance and troubleshooting for major and minor components of the truck. The apparatus manufacturer shall supply part numbers for major components (i.e. Engine, Axles, Transmission, Pump, etc.). A table of contents, hydraulic, air brake and overall apparatus wiring schematics shall be included.

A video demonstration DVD on the operation of the truck shall be supplied with the manuals.

APPARATUS COMPLETION

The customer shall be notified approximately seven (7) days prior to the completion of the apparatus so they may make necessary travel arrangements to pickup the apparatus at the factory.

DEALER PREP/INSPECTION

The apparatus dealer responsible for the sale of the apparatus shall perform a pre-delivery inspection of the apparatus prior to the customer taking possession of the vehicle. This inspection allows for the dealer to record all applicable part and serial numbers for the apparatus so that service and parts can be easily facilitated during the service life of the vehicle. This inspection also allows for a second quality control check, prior to the apparatus being placed in service.

WARRANTIES

The following warranties shall be supplied:

1. The apparatus shall be warranted to be free from mechanical defects in workmanship for a period of one (1) year. The apparatus shall be covered for parts and labor costs associated with repairs for a period one (1) year.
2. Life-time warranty on the frame.
3. Seven (7) year warranty on paint.
4. Ten (10) body structural warranty
5. Ten (10) year cab structural warranty
6. Manufacturers Warranties for all major components.

Detailed warranty documents shall be included for complete coverage on each of these warranties.

MANUFACTURING & LOCATIONS

The apparatus will be manufactured in facilities wholly owned and operated by the company. A complete stock of service parts, and service shall be provided on a 24 hours around the

EXCEPTIONS TAKEN
YES NO

clock basis. The company shall maintain parts and service for a minimum period of twenty (20) years on each apparatus model manufactured.

YES	NO