

Wheatland Township Fire Department

GENERAL SPECIFICATIONS

Crimson Fire submits the following detailed proposal is submitted for your consideration:

Unit will be protected by permanent Anti-Freeze for operation between -30 degrees F to +235 degrees F and shall have all fluid levels filled prior to delivery.

Unit will be designed and constructed to follow the requirements of the following:

FMVSS; DOT; ICC; NFPA Pamphlet 1901; SAE; TRA; ULI; TBEA; and State Motor Vehicle regulations (NFPA loose equipment not requested is not included).

Crimson Fire is a subsidiary of Spartan Motors Inc. at 1000 Reynolds Road, Charlotte MI.

Crimson Fire (formerly Luverne Fire Apparatus) has been in operation since 1912. Crimson Fire maintains a complete, on-site parts department, and ships spare parts orders the same day they are received.

The apparatus will be manufactured at 907 7th Avenue North at Brandon, South Dakota.

Spartan Motors Inc. has been in operation since 1975. Spartan Motors Inc. maintains a complete, on-site parts department, and ships spare parts orders the same day they are received.

The chassis will be manufactured by International.

Zahnen Truck Service & Equipment, Inc., is the authorized dealership for Crimson Fire in the state of Michigan.

Authorized factory servicing shall be provided by Emergency Vehicle Services, Inc., "EVS" located at Belding, MI.

"EVS" provides 24-7-365 mobile services for all warranty and service needs.

"EVS" employs EVT and ASE certified mechanics.

The apparatus will be designed and assembled completely in the USA.

Unit will be quality control inspected and documented at each step of manufacturing, and will be fully road tested.

Unit will be fully covered by manufacturer's insurance until delivery is made.

Unit will be designed and assembled so that all recommended daily maintenance checks can be performed easily by the operator without the need for hand tools. Apparatus components that interfere with removal or repair of other major components will be attached with fasteners and installed with normal hand tools. These components will not be welded or otherwise permanently secured into place.

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A test data plate will be provided at the pump operator's position which gives the rated discharges and pressures, together with the speed of the engine as determined by the manufacturer's test for this unit.

A manufacturer's certification of GVWR and GAWR on a nameplate will be affixed to the completed vehicle.

A permanent plate mounted in the driver's compartment will be supplied. It will specify the quantity and type of the following fluids used in the vehicle: engine oil, engine coolant, chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used), and drive axle lubrication fluid.

A permanent plate in the driver's compartment will be installed, specifying the seating capacity of the included cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" will be provided. They will be visible from each seated position.

An accident prevention sign will be located at the rear step area of the apparatus. It shall warn personnel that standing on the step while vehicle is in motion is prohibited.

A nameplate indicating the chassis transmission shift selector position to be used for pumping will be provided in the driving compartment and located so that it can be easily read from the driver's position.

The height of the fully loaded vehicle's center of gravity will not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle will be within the limits set by the chassis manufacturer. The front axle loads will not be less than the maximum axle loads specified by the chassis manufacturer, under full load and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped will not exceed 7 per cent.

All manufacturers' operations and maintenance documents supplied with components and equipment installed on, or supplied with the completed vehicle will be provided.

Any special tools that are required to service any component will be provided with the completed apparatus. (When applicable)

The apparatus is designed so that the various parts are readily accessible for lubrication, inspection, adjustment, and repair.

The apparatus when fully loaded will be capable of the following performance on dry, level paved roads in good condition.

- (a) From a standing start the vehicle will attain a true speed of 35 mph within 25 seconds.

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- (b) From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.
- (c) The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.
- (d) The vehicle will attain a minimum speed of 50 mph.

The GAWR and GVWR of the chassis will be adequate to carry the fully equipped apparatus including water and other tanks filled, the specified hose load, unequipped personnel weight, ground ladders, and a miscellaneous equipment allowance per NFPA criteria as well as additional equipment and personnel specified by purchaser.

Personnel is calculated at 200 lbs per person.

LIABILITY INSURANCE COVERAGE

Crimson Fire certificate of liability insurance coverage is included in this proposal, which exceeds \$50 million dollars.

PERFORMANCE BOND

A one hundred (100%) Performance Bond shall be supplied within thirty (30) days of bid award. Contract signatures of both buyer and Crimson Fire shall finalize awarding of the bid.

BID DRAWINGS

Drawings of the unit proposed have been furnished with this proposal.

APPROVAL DRAWINGS

With-in sixty (60) calendar days of award, a pre-construction conference shall be held.

DELIVERY

Delivery of the vehicle shall be provided within 240 to 300 calendar days from date of award of bid.

WARRANTIES

Warranties are listed in the bid specifications, with a copy supplied in section 7 of the bid packet.

The chassis shall have the standard International warranty.

OVERALL MEASUREMENTS OF THE COMPLETED APPARATUS

Wheelbase: 240"
Height: Under 120"

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Length: 398"

APPARATUS TEST BY UNDERWRITERS LABORATORIES

The following Apparatus shall comply with all NFPA 1901 applicable regulations in effect as of the contract signing date. There shall be multiple tests performed by Crimson Fire and Underwriter's Laboratories when the apparatus has been completed. Crimson Fire shall furnish the completed Test Certificates to the purchaser at time of delivery.

The tests conducted on the apparatus shall include, but not be limited to:

PUMP & PLUMBING PERFORMANCE TEST

The apparatus pump and plumbing system shall be tested and certified.

12 VOLT ELECTRICAL TEST

The apparatus low voltage electrical system shall be tested and certified.

SUPPLIED INFORMATION & EXTRAS

Crimson Fire shall supply two (2) copies of apparatus manuals with all manufactured apparatus. The manuals shall include, but not be limited to: all component warranties, users manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information Crimson Fire can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, Crimson Fire shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and upkeep of the general apparatus.

Crimson Fire shall also supply a manufacturer's record of apparatus construction details, including the following information:

Owner name and address;
Apparatus manufacturer, model, and serial number;
Chassis make, model, and serial number;
GAWR of front and rear axles;
Front tire size and total rated capacity in pounds;
Rear tire size and total rated capacity in pounds;
Chassis weight distribution in pounds with water (if applicable) and manufacturer mounted equipment (front and rear);
Engine make, model, serial number, number of cylinders, bore, stroke, displacement and compression ratio, rated horsepower and related speed per SAE J690, Certificate of Maximum Net Horsepower for Motor Trucks and Tractors, and no load governed speed;
Type of fuel and fuel tank capacity;
Electrical system voltage and alternator output in amps;
Battery make and model, capacity in CCA;
Paint numbers;

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Company name and signature of responsible company representative;
Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose);
Written load analysis and results of the electrical system performance tests;
Transmission make, model, and type;
Pump to drive through the transmission (yes or no);
Engine to pump gear ratio and transmission gear ratio used;
Pump make, model, rated capacity in gallons per minute, serial number, number of stages, and impeller diameter in inches;
Pump manufacturer's certification of suction capability;
Pump manufacturer's certification of hydrostatic test;
Pump manufacturer's certification of inspection and test for the fire pump;
Copy of the apparatus manufacturer's approval for stationary pumping applications;
Pump transmission make, model and serial number;
Priming device type;
Type of pump pressure control system;
The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed;
Certification of water tank capacity;

GENERAL WARRANTY

We warrant each new fire apparatus manufactured by Crimson Fire for a period of one (1) year from the date of delivery, except for the chassis and certain other components as noted in paragraph three.

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

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

This warranty shall not apply to any fire apparatus, which has been repaired or altered outside our factory in any way, unless prior written authorization has been received from Crimson Fire.

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

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on our part. We neither assume nor authorize any person to assume for us any liability

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in connection with the sales of our apparatus unless made in writing by Crimson Fire.

STRUCTURAL WARRANTY

A structural warranty will be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of twenty (20) years.

PAINT WARRANTY

A ten (10) year Paint Warranty will be included with the apparatus.

PUMP WARRANTY

A pump warranty shall be provided by Hale for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of two (2) years or two thousand (2000) hours of usage, whichever comes first.

TANK WARRANTY

A lifetime tank warranty shall be provided by the tank manufacturer.

MULTI-PLEXED ELECTRICAL WARRANTY

A multi-plexed electrical warranty will be provided by the apparatus manufacturer under normal use and service, for a period of four (4) years. One (1) year parts and labor, three (3) years parts only.

INTERNATIONAL CHASSIS

The chassis shall be an International 7600 2-Door per the attached specifications.

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components shall be activated by Carlingswitch V-series rocker style switches. The switches shall be located on a separate embossed electrical panel, fabricated with aluminum complete with backlit name tags describing the function of each individual switch. An internally lighted red rocker switch shall be furnished on the left and identified as the "MASTER EMERGENCY SWITCH".

ELECTRICAL CONTROL CENTER CONSOLE

The rocker switch panel shall be mounted on a custom fabricated electrical control center console mounted between the driver and officer. Other components such as open door warning light, pump shift controls, vacuum fluorescent display, siren head controller, etc may be mounted on the console as well (depending on space required). If space isn't available on the console, the remaining controls shall be mounted on the cab dash immediately above the console for access by both the driver and officer.

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The electrical control center console shall be fabricated of 1/8" smooth aluminum. It shall be zolatone finished gray, for a pleasing appearance and durable finish.

The console shall house a majority of the electrical hardware required to serve chassis electrical functions. For ease of service, the hardware shall be accessed by a removable panel on the front of the console. The 1/8" aluminum cover shall be securely fastened and easily removed by a series of threaded fasteners.

The exterior shall be zolatone finished gray, for a pleasing appearance and durable finish.

BATTERY SWITCH - ROCKER TYPE

There shall be one (1) switch on the Master Rocker Switch Panel to activate the battery system. The switch shall be black and lighted. The rocker switch light shall be illuminated green to indicate that the battery system is on.

BACK UP ALARM

An electronic backup alarm shall be furnished and installed. It shall be 97 decibels and actuate automatically when transmission gear selector is placed in reverse.

HAZARD LIGHT IN CAB

There shall be a "Door Open" indicator light mounted in the cab. The light shall be mounted to the cab dash between the driver and officer (if possible) and shall activate when the parking brake is released and a compartment door or any additional specified devices are not closed completely. There shall be a placard stating "Do Not Move Apparatus When Light Is On." The light shall be a Weldon LED marker lamp, red in color.

REFLECTIVE STRIPPING

Reflective stripping shall be added to the inside of the cab doors in accordance to NFPA regulations.

HORIZONTAL EXHAUST

The chassis shall have a horizontal exhaust system piped to the side of the apparatus body just ahead of the rear wheels.

STEP OVERLAYS AND BATTERY BOX

The two (2) door chassis cab steps shall be replaced or enhanced with bright aluminum diamond plate overlays. The battery box and other equipment located directly under the cab doors shall be covered by an overlay to provide a pleasing appearance. If OEM stepping areas are not suitable, stepping surfaces shall be fabricated of knurled diamond plate to provide a positive grip compliant with the latest recommendations (by NFPA 1901) for 'non-slip' surfaces. Provisions shall be included for easy access to any regularly serviced or utilized components.

ENGINE COMPARTMENT LIGHT

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There shall be one (1) 12 volt work light installed in the engine compartment. The light shall be enclosed in an ABS case. The light head shall be removable and have a retractable wire that can be extended a minimum of 10 feet to allow maintenance personnel to relocate and direct the light as needed. The light shall have an on/off switch.

PERIMETER LIGHTS

There shall be six (6) underbody perimeter lights furnished and installed. One (1) each side under the chassis cab steps, one (1) under each side of the front of the body and two (2) under the rear step to illuminate the ground around the truck.

The lights shall be manufactured by Trucklite and be model # 40003.

The ground lights shall activate by the setting of the park brake.

BATTERY CHARGER

A battery charger shall be furnished and installed. It shall have a 15 amp output to the batteries with several "battery saver" outputs, allowing up to 3 amps of 12 volt rechargeable items to be wired through the charger, only allowing charging when the shoreline is plugged in. There shall be a bar graph display, to indicate battery condition, mounted near the shoreline. The charger shall be manufactured by Kussmaul Electronics and be a model Auto Charge 1000.

There shall be a 110 volt, 20 amp shoreline receptacle furnished on the apparatus. When disconnected, the receptacle shall have a weatherproof cover. The plug for the receptacle shall be shipped loose to be installed on the shoreline cord. The receptacle shall be Yellow in color.

The shoreline connection(s) shall be installed under the driver's door area at the lower step level. The connection(s) shall be placed forward of the immediate stepping area if space allows.

SIREN

One (1) Code 3 electronic siren, V-Con model # 3692 shall be furnished and installed. It shall be 200 watts and feature wail, yelp and hi-low tones with manual wail and manual electronic air horn. The siren and hard wired, noise canceling microphone shall be installed with-in reach of the driver and officer (center) mounted on top of the dash.

SIREN SPEAKERS

There shall be two (2) 100 watt siren speakerS furnished and installed. Each speaker shall be a Cast Products model # SH-2015.

There shall be two (2) speakers installed in the front bumper, (1) one mounted on the right side and one (1) mounted on the left side.

AIR HORNS

There shall be two (2) chrome plated air horns furnished and installed on the vehicle. They shall

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be manufactured by Grover and be the Stuttertone model # 1510.

The air horn(s) shall be mounted on the chassis hood.

The air horns shall be actuated by a chain lanyard, accessible to both the driver and officer

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided. They shall be visible from each seating position.

There shall be a lubrication plate mounted inside cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

- Engine oil
- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Pump Primer Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (if applicable)
- Tire Pressures

VEHICLE INFORMATION LABEL

There shall be a travel clearance warning label located in the chassis cab. The travel clearance warning label to be located in easy view of the driver. The travel clearance warning label to include the following information:

1. Overall travel clearance height in feet and inches.
2. Overall travel clearance length in feet and inches.
3. Overall travel clearance width in feet and inches.

TIRE CHAINS

There shall be a set of air operated, automatic tire chains furnished and installed on the rear axle. The control for the tire chains shall be located in the chassis cab within easy reach of the driver. The chain links shall be bolted in place and easily removable. Tire chains to be manufactured by On Spot, Inc.

MUD FLAPS

Heavy-duty rubber mud flaps shall be provided behind all wheels. The mud flaps shall be black rubber type and be bolted in place.

WHEEL COVERS

There shall be full dish stainless steel wheel covers with lug nut covers and hub caps furnished and installed on the front and rear disc wheels of the chassis. The front wheels shall have valve

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stem extenders installed.

CAB STORAGE

The deluxe electrical control center console shall be fabricated of 1/8" smooth aluminum. The top of the console shall be formed with a 1" lip bent up around its perimeter. The top shall be fastened to the base with threaded fasteners for ease of removal and access to the electrical hardware contained within. This area shall serve as the main electrical distribution point for all chassis related functions and contain the majority of the hardware related to these functions. The base of the console shall be custom trim-fit to the chassis floor line and be securely fastened. The rear of the console shall have one (1) angled storage area to hold a 3-ring binder.

The exterior shall be zolatone finished gray, for a pleasing appearance and durable finish.

MIDSHIP PUMP

The pump shall have the capacity of 1000 gallons per minute, measured in U.S. Gallons. The pump shall be a Hale Fire Pump, QPak-100, single stage.

The entire pump shall be manufactured at the pump manufacturer's factory. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body shall be vertically split, on a single plane, in two sections, for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump on the chassis. The pump body shall have two opposed discharge volute cutwaters to eliminate radial unbalance

The pump shall have an impeller made of hard, fine grain bronze of the mixed flow design; accurately machined, hand ground and individually balanced. The vanes of the impeller intake eyes shall be hand ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. The pump shaft is to be rigidly supported by three bearings for minimum deflection. The bearings shall be heavy duty, deep groove ball bearings in the gearbox and they shall be splash lubricated. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. The bores shall be ground to size and teeth integrated, crownshaved and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

Impeller clearance rings shall be removable and made of noncorrosive material. The pump shaft shall be heat-treated, electric furnace, corrosion resistant, stainless steel. The pump shaft must be sealed with double lip oil seal to keep road dirt and water out of the drive unit.

The pump drive unit shall be of sufficient size to withstand up to 16,000 lbs./ ft. Of torque of the engine in both road and pump operating conditions. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The drive unit shall be cast and completely manufactured and tested at the pump manufacturer factory.

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

The pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. The pump shall be free from objectionable pulsation and vibration.

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The pump must deliver the percentages of rated capacity at these pressures:

100% of rated capacity at 150 pounds net pressure,
100% of rated capacity at 165 pounds net pressure,
70% of rated capacity at 200 pounds net pressure,
50% of rated capacity at 250 pounds net pressure.

MASTER DRAIN VALVE

There shall be a manifold type drain valve installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled on the left side lower pump house sill. The control shall be a hand wheel knob marked "open" and "closed".

PUMP SEAL

A mechanical seal shall be supplied on the inboard side of the pump. The mechanical seal must be two (2) inches in diameter and shall be spring-loaded, maintenance-free and self-adjusting. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat.

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring loaded guard lever that locks in "Road" or "Pump" mode.

To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator

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at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "Throttle Ready" indicator is lit and the pump is engaged. The remaining panel lights shall be controlled via push button switch.

PUMP SHIFT MANUAL OVER RIDE

In the event of pump shift failure, the pump can be shifted by a push/pull manual override. The handle shall be located underneath the drivers side pump panel and shall be labeled accordingly.

REDUNDANT ELECTRONIC TRANSMISSION LOCKUP CIRCUIT

There shall be a redundant electric circuit that upon actuation of a guarded toggle switch adjacent to the manual pump shift lever will cause the Allison transmission to attempt to attain converter lockup in 4th range after the operator selects drive on the chassis provided transmission selector. A placard will be provided detailing the sequence of events necessary to utilize the circuit. This circuit will be independent of all other systems on the apparatus.

PRIMING SYSTEM

The priming system shall include an electrically driven rotary vane priming pump rigidly attached to the pump transmission. The priming pump shall be self lubricating and shall not require an external oil reservoir. The pump, when dry, shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds through 20 feet of suction hose through the steamers.

PRIMER CONTROL

The primer shall activated by a pull/push "T" handle control, Hale Model "PVG".

STEAMER INLETS

There shall be two (2) standard length 5" inlets furnished, one (1) each side of the pump. The inlets shall protrude 3-4" away from the side panels and shall each have 5" NST threads and a removable strainer

5" CHROME PLATED BRONZE CAPS

There shall be two (2) 5" long handled chrome plated caps furnished. The caps shall be National Standard Thread.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, waterways, and manifolds shall be fabricated with stainless steel pipe, brass or high pressure flexible piping with stainless steel couplings. Where waterway transitions are critical (elbows, tees, etc), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valving shall be non-painted. All piping welds shall be

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wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.5" through 4". Sizes 3/4", 1" and 5" are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1" through 5" for maximum performance in tight bend applications. The material has a temperature rating of --40° F to +210° F.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male 3/4" and 1" couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I. D. is utilized to assure maximum holding power when fastening couplings to hose.

2 1/2" STREETSIDE SUCTION

There shall be one (1) gated suction inlet installed.

The inlet shall be equipped with a 3/4" bleeder.

The suction shall be plumbed with a 2 1/2" Elkhart Brass valve.

The suction shall be controlled with a lever directly attached to the valve.

The side suction shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on the streetside of the pump house.

The suction shall terminate with a heavily chrome plated brass 2 1/2" NST swivel female adapter with screen. In addition, a 2 1/2" NST male plug shall be included secured by a chain or cable to the inlet termination location.

STREETSIDE DISCHARGES

There shall be two (2) gated discharges installed.

Each discharge shall utilize an Elkhart Brass 2 1/2" valve.

Each discharge shall be controlled with a 'swing-type' lever directly attached to the valve. The lever shall operate just over 90 degrees of travel to provide full open / full closed positioning of the valve.

Each discharge shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain controls shall be located on the lower sill on the streetside of the pump house.

Each discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

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A heavily chrome plated brass 2 1/2" NST female by 1 1/2" NST male adapter with 1 1/2" NST cap shall be included secured by a chain or cable to the outlet termination locations.

A Class 1 2 1/2" gauge shall be supplied for each discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP-220.

CURBSIDE DISCHARGES

There shall be two (2) gated discharges installed.

Each discharge shall utilize an Elkhart Brass 2 1/2" valve.

Each discharge shall be controlled from the side operator's panel.

Each discharge shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain controls shall be located on the lower sill on the curbside of the pump house.

Each discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

A heavily chrome plated brass 2 1/2" NST female by 1 1/2" NST male adapter with 1 1/2" NST cap shall be included secured by a chain or cable to the outlet termination locations.

A Class 1 2 1/2" gauge shall be supplied for each discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP-220.

DOUBLE STACK CROSSLAY 1-3/4"

The crosslay hose bed shall be located in the upper forward portion of the pump compartment. The crosslay shall be constructed with a fifteen (15) inch approximate depth for laying a double stack of the hose size specified below. The crosslay area shall be located at the front of side control module apparatus and at the rear of top control module apparatus. The crosslay area shall span the entire width of the pump module apparatus. Removable slotted aluminum flooring shall be provided for hose area drainage. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the crosslay opening. A chicksan swivel shall be installed just below the floor of crosslay bed just high enough for hose couplings to be accessed and tightened on to chicksan . The chicksan swivel shall swing from left to right to allow attached hose to be deployed from either side.

One (1) crosslay shall be provided for up to 200 feet of 1 3/4" hose.

The discharge shall utilize an Elkhart Brass 2" valve.

The discharge shall be controlled from the side operator's panel.

The discharge shall be plumbed with 2" Class 1 high pressure vapor hose and stainless steel

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couplings and/or stainless steel piping. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway system.

The discharge shall terminate with a brass 1 1/2" NST chicksan swivel. This discharge is intended to be pre-connected to hose, so no cap shall be provided.

A Class 1 2 1/2" gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP-220.

CROSSLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the crosslay hose bed area. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

CROSSLAY COVER

The crosslay hose bed area shall have a hinged 1/8" embossed aluminum tread plate cover. The cover shall be installed to provide a solid surface over all bays and have a mechanical butterfly latched holding the cover in the closed position. When opened, the cover shall rest upon rubber bumpers or an equivalent type protective to eliminate marring or scratching of other apparatus body work.

The crosslay hosebed cover shall open forward. The cover shall be sized to fit between the telescoping quartz lights.

DELUGE PLUMBING

There shall be one (1) deluge waterway installed.

The discharge shall utilize an Akron Brass 3" 8000 series slo-cloz valve.

The discharge shall be controlled from the side operator's panel.

The deluge shall be plumbed with 3" piping that terminates 5" above the top of the pump compartment. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway system if required.

There will be a Task Force Tips 18" Extenda-Gun installed on the deluge pipe. The Extenda-Gun will be wired to the cab "Door Open" indicator light that will notify occupants the gun is not properly stowed.

A Class 1 2 1/2" gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP-220.

The deluge pipe shall be located up through the pump compartment, centered from left to right.

FOAMPRO 2002

There shall be a fully automatic electronic direct injection foam proportioning system furnished

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and installed on the apparatus. The proportioning operation shall be based on an accurate direct measurement of water flows by a paddle wheel flow meter with no water flow restriction. The foam system shall have a 12 volt, 3/4 horsepower "TENV" electric motor, designed for high humidity environments, coupled to a positive displacement piston type foam concentrate pump. It shall have a rated capacity of .01 to 5.0 GPM with operating pressures up to 400 psi. The system shall be model FoamPro 2002, manufactured by the Hypro Corporation installed in accordance with the manufacturers recommendations.

The system shall be equipped with a digital electronic control display. It shall be installed on the pump operators panel and enable the pump operator to perform the following functions:

- Activate the foam system
- Change foam concentrate proportioning rates from .1% to 6% in .1% increments.
- Display current flow in GPM
- Display total flow in GPM
- Display total amounts of foam concentrates used
- Provide simulated flow for manual operation
- Perform setup and diagnostic functions

The system shall be supplied by a single foam tank that shall be monitored by the control display. The display shall flash a "low concentrate" warning for two minutes when the foam tank runs low. In the event that no additional concentrate is added to the tank, the foam concentrate pump shall be deactivated.

FOAM TANK

There shall be a 30 gallon foam tank furnished and plumbed with non-corrosive piping to the foam system. There shall be a square fill tower with a hinged lid equipped with a hold down device. The fill tower shall be approximately 10" x 10".

A label that reads " Class A Foam Tank Fill" shall be placed on the foam tank fill tower lid.

The foam tank shall be integral with the booster water tank provided.

There shall be a 3/4" quarter turn drain valve furnished for drainage of the foam tank. The valve shall be installed in the pump house with a drain line extended to the side running board.

TANK LEVEL GAUGE

A Class 1 "Intelli-Tank" foam tank level gauge shall be mounted on the pump panel. The foam tank level gauge shall indicate the foam level on an easy to read LED display and show increments of 1/8 of a foam tank. The foam tank level gauge will utilize a pressure transducer that mounts on the outside of the foam tank for sensing the foam level. No probes shall be installed for the foam tank. The foam tank level gauge shall have a super bright LED 4-light display with a visual indication at nine accurate levels. A set of weather resistant connectors to connect to the digital display, to the pressure transducer and to the apparatus power shall be supplied with the foam tank level gauge.

The gauge shall be a model ITL.

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The system shall supply three (3) discharges as follows:

- One (1) crosslay
- Two (2) curbside discharges

Each discharge shall have a red foam label.

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA Pamphlet 1901, latest revision and shall be tested to those standards when the pump is being certified. One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Schedule 10 stainless steel or schedule 40 Poly-Vinyl Chloride piping may be used to complete the connection from the tank to pump valve to the water tank.

The tank to pump line shall utilize an Elkhart Brass 3" valve.

The valve shall be controlled from the side operator's panel.

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standards, which shall be of bronze construction. The check valve shall be mounted as an integral part of the pump suction extension.

TANK FILL LINE

One (1) 2" tank fill/recirculating line shall be installed from the pump directly to the booster tank.

The tank refill line shall utilize an Elkhart Brass 2" valve.

The valve shall be controlled from the side operator's panel.

DIRECT TANK FILLS

There shall be two (2) external direct tank fill ports located on the rear of the apparatus.

Two (2) Elkhart Brass 2 1/2" valves shall be installed.

Each valve shall be controlled with a 'swing-type' lever directly attached to the valve. The lever shall operate just over 90 degrees of travel to provide full open / full closed positioning of the valve.

Each direct tank fill shall be plumbed with 2 1/2" piping.

Each direct tank fill shall terminate with a heavily chrome plated brass 2 1/2" NPT female to NST

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female adapter and a 2 1/2" NST male by female swivel 45 degree elbow. In addition, a 2 1/2" NST male plug shall be included secured by a chain or cable to the outlet termination location.

One (1) direct tank fill shall be located on the streetside rear of the apparatus.

One (1) direct tank fill shall be located on the curbside rear of the apparatus.

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A. S.W. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that is encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

TORSION PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it "floats" above the chassis frame rails with vibration and torsion isolator assemblies. The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing. There shall be a 1/4" thick UHMW polymer bearing washer between the body structure and each torsion mount. This washer shall provide dissimilar metals contact between the body structure and each mount. The UHMW bearing washer shall also act as a wear pad due to its low wear material properties.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures.

PUMP COMPARTMENT HEATER

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A 30,000 BTU hot water type heater shall be furnished and installed inside the pump compartment. The heater shall be connected to the engine cooling system with gate valves located inside the engine compartment. A 12 volt electric fan is to be furnished with an indicator light on the operator panel.

HEAT PAN

There shall be a heat pan enclosure installed under the fire pump gear case. The heat pan assembly shall be fabricated of .125 aluminum. The top portion shall be bolted in place with stainless steel bolts and nuts. The bottom of enclosure shall have a slide rail on each side with a full slide out bottom pan for easy maintenance. The bottom pan shall be held in place with rubber retaining straps.

There shall be a 3" hole cut on each side of the pan for drainage.

OPERATORS PANEL

The pump operator's panel shall be located on the left, upper side of the apparatus pump compartment. The panel shall be split into an upper and lower section. The left upper panel shall house all gauges and controls and be hinged to allow easy access to those components. The door shall have a stainless steel hinge, a dual point chrome push button latch and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The tubular structure shall be overlaid underneath the removable panels on each side of the compartment shall be made of brushed stainless steel.

Valve controls shall be immediately adjacent to it's respective gauge. The valve controls shall be properly labeled and color coded for ease of use. All markings shall be permanent in nature.

Adequate illumination shall be provided for all gauges and controls by means of a shielded light assembly with two (2) Weldon 2025 lights on the left side or an adequate amount of lights space permitting and one directional light on the right side panel.

The panel lights shall activate by the setting of the park brake.

PUMP COMPARTMENT FRONT OVERLAY

The front wall of the pump compartment module shall be overlaid entirely with tread plate aluminum fastened with mechanical fasteners. There shall NOT be any service access openings provided in this area of the module.

The structural framework of the pump compartment shall be self-supportive and independent of the apparatus body. The pump module shall be approximately 74" in width as measured laterally across the apparatus and approximately 70" in height. The width of the apparatus as measured longitudinally (measured within the wheelbase dimension of the apparatus) shall be specified in the remainder of the specifications.

The width of the pump compartment (front to back) shall be 34".

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APPARATUS LABELING

The apparatus shall be descriptively tagged with color coded metal labels. The labels shall be applied near Apparatus features that require a user function description. Wherever necessary, the labels shall be color coded to differentiate controls and their respective functions to simplify and clarify complex configurations.

BRUSHED STAINLESS STEEL SIDE PANELS

There shall be two (2) side pump panels on the right side of the pump compartment, one upper panel and one lower panel. The left, upper side panel shall be the pump operator's panel. Each upper panel shall be accessible by a quick-release type latch, closing against a door seal. Each lower panel shall be easily removed for a large access to the pump for service. All panels shall be manufactured from heavy duty brushed stainless steel, capable of withstanding the effects of extreme weather and temperature.

RUNNING BOARDS

The running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails. The running boards shall be independent of the apparatus body and shall be tied only to the pump compartment structure, thereby eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive shall be applied to the top surface of the running board framework to provide a suitable stepping surface.

EMBOSSSED TREAD PLATE OVERLAY

The left side running board shall have an embossed aluminum tread plate overlay installed. The stepping area shall be as large as possible, overlapping the perimeter of the structural running board framework. The embossed tread plate material shall meet the latest NFPA abrasiveness criteria for materials utilized in stepping and/or standing areas.

EMBOSSSED TREAD PLATE OVERLAY

The right side running board shall have a embossed aluminum tread plate overlay installed. The stepping area shall be as large as possible, overlapping the perimeter of the structural running board framework. The embossed tread plate material shall meet the latest NFPA abrasiveness criteria for materials utilized in stepping and/or standing areas.

MASTER GAUGES

Both the master intake and master discharge gauges shall be manufactured by Class 1 and mounted on the operator's panel. They shall be liquid filled to keep the dial from pulsating and also to prevent condensation from forming inside the gauges. The master gauges shall be 4 1/2" in diameter. The master intake gauge shall read from - 30 to 400 psi with the master discharge gauge reading from 0 to 400 psi. The gauges shall be Class 1 model LFP-410.

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TESTING PORTS

There shall be a pressure and vacuum test gauge adapter with chrome plated plugs furnished and installed on the pump operators panel.

PRESSURE GOVERNOR

A Class 1 Captain Pressure Governing System shall be furnished and installed on the pump panel. The PSG allows for pump pressure control and throttle control.

The PSG installation shall be wired specifically for the Cummins electronic engine.

SUCTION RELIEF VALVE

A suction relief valve with a range of pressure adjustment from 75 to 250 PSI shall be furnished, and installed inside pump compartment piped to the suction side of the pump. The valve shall be preset at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere via the unloader pipe and shall dump on the opposite side of the pump operator. The valve shall come with 2 1/2" male NPT threads that can be capped if the relief valve fails in the open position. For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

ENGINE INFO CENTER

There shall be a Class 1 ENFO III furnished and installed on the pump panel of the apparatus. The ENFO III provides the pump operator with Engine RPM, Oil Pressure, Engine Temperature, and Electrical System Voltage. This compact unit contains all required engine audible alarms including the low voltage alarm.

HEAT EXCHANGER

There shall be a supplementary heat exchanger cooling system furnished and installed for use of water from the discharge side of the fire pump through the engine compartment, without intermixing, for absorption of excess heat. The heat exchanger shall be adequate in size to maintain the temperature of the coolant in the pump drive engine not in excess of the engine manufacturer's temperature rating under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing. A manual shut-off valve shall be supplied at the pump operator's position.

RADIO BOX

There shall be a weather resistant radio box recessed mounted in the left side pump panel. The radio box shall be approximately 12" tall x 12" wide x 12" deep.

The top of the pump compartment shall be an approved stepping surface constructed of embossed tread plate approved by the latest NFPA standards for abrasiveness.

Space Frame Body - STAINLESS STEEL

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The apparatus body shall be a **Space Frame** design. The entire body structure shall be built as a space frame design with integral structural members forming the entire body structure (compartment frames and sub-frame support area). The space frame design provides maximum torsion resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This style of design ultimately reduces fatigue and shall add longevity to the body structure. Body designs that use formed sheet metal compartments with independent sub-frames shall not be acceptable.

Body Structure Members: The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space and serve as an attachment member for shelves, trays, or other equipment that requires mounting. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.5" in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from 14 gauge to 11 gauge throughout dependent on the design requirement.

Body Material Type: All body structure and sheet material shall be premium grade Stainless Steel, Type 304L. This alloy is required because it provides optimum all around performance for strength, manufacturing properties, and corrosion resistance.

Compartment Floors: The body compartments shall be enclosed with stainless steel sheet metal as specified above. The compartment floors shall have a 1" lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a "sweep-out" compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

Compartment Vents: The body compartments shall be vented through the structural members to below the apparatus body. There shall be mildew resistance filter media with aluminum mesh at the bottom of each structural member that is open for venting.

Compartment Load Capacity: Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment has been designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs per compartment

Half depth side compartment: 750 lbs per compartment

Rear center compartment: 1,500 lbs per compartment

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RUB RAILS

The bottom edge of the compartments shall be trimmed with rub rails to absorb minor damage while protecting the body. The rub rails shall be fabricated of brightly anodized aluminum channel. The rub rails shall be bolted in place with stainless steel bolts and locking nuts, and shall be spaced away from the body with 1/2" nylon spacers to help prevent the collection of water and debris. Each rub rail section shall be easily removable and replaced should it become damaged.

RUB RAILS

The rearward edge of the rear step shall be trimmed with rub rails to absorb minor damage while protecting the body. The rub rails shall be fabricated of brightly anodized aluminum channel. The rub rails shall be bolted in place with stainless steel bolts and locking nuts, and shall be spaced away from the body with 1/2" nylon spacers to help prevent the collection of water and debris. Each rub rail section shall be easily removable and replaced should it become damaged.

REAR TAILBOARD

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body. The tailboard shall be an independent assembly welded to the rear body structural framing to provide body protection and a solid rear stepping platform. The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'. On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (Per NFPA 1901).

The rear tailboard shall be approximately thirteen and one-half (13.5) inches deep and shall incorporate an embossed aluminum tread plate overlay. The stepping area shall span the width of the apparatus, overlapping the perimeter of the structural tailboard framework. The embossed tread plate material shall meet the latest NFPA abrasiveness criteria for materials utilized in stepping and/or standing areas.

FOLDING STEPS

Each surface of the folding step shall have grip material with a minimum of 42 sq. inches in size. Each step shall be capable of sustaining a 500 lb. static load. The step shall be manufactured by Austin/Thomas Hardware model #FS100.

The following steps shall be installed:

FOLDING STEPS

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Four (4) folding steps shall be installed on the right forward wall of the front compartment.

One (1) light shall be mounted to illuminate stepping areas provided. The light shall be a Weldon chrome shielded 12 candle power light. The light shall be directed towards and positioned above the stepping surfaces.

The light shall activate by the setting of the park brake.

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted on the top of the pump compartment outboard edge to assist in climbing the steps according to NFPA 1901. There shall be chrome plated brackets with a rubber gasket installed between the body and the bracket. There shall be a 2" minimum clearance between the bracket and the body.

Four (4) folding steps shall be installed on the right rear vertical face of the body.

Two (2) lights shall be mounted to illuminate stepping areas provided. Each light shall be a Weldon chrome shielded 12 candle power light. Each light shall be directed towards and positioned above the stepping surfaces.

The lights shall activate by the setting of the park brake.

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted horizontally on top of the body side at the rear of the body above the steps to assist in climbing the steps according to NFPA 1901. There shall be chrome plated brackets with a rubber gasket installed between the body and the bracket. There shall be a 2" minimum clearance between the bracket and the body.

Four (4) folding steps shall be installed on the left forward wall of the front compartment.

One (1) lights shall be mounted to illuminate stepping areas provided. Each light shall be a Weldon chrome shielded 12 candle power light. Each light shall be directed towards and positioned above the stepping surfaces.

The lights shall activate by the setting of the park brake.

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted on the top of the pump compartment outboard edge to assist in climbing the steps according to NFPA 1901. There shall be chrome plated brackets with a rubber gasket installed between the body and the bracket. There shall be a 2" minimum clearance between the bracket and the body.

Two (2) folding steps shall be installed on the left rear vertical face of the body.

One (1) light shall be mounted to illuminate stepping areas provided. The light shall be a Weldon chrome shielded 12 candle power light. The light shall be directed towards and positioned above the stepping surfaces.

The light shall activate by the setting of the park brake.

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PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall then be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be PPG Industries Delfleet® brand, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanate in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cellosolves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturers recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Material Data Safety Sheet".

The following documents of the issue in effect on the date of the invitation to quote, form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, aliphatic Isocyanate, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body, will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects.

BODY PAINT COLOR

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The apparatus body shall be painted PPG FBCH 70853 Red to match the chassis.

NATURAL COMPARTMENT FINISH

To prevent scratching of the paint finish, and to provide the maximum reflectivity for the compartment lighting, the interior of the compartments shall have a natural stainless steel finish. Absolutely no coatings will be allowed on the compartment interiors.

GENERAL BODY DETAILS

All compartmentation shall be constructed in a sweep out design to be water and dust proof, manufactured to the maximum possible storage capacity.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. The Manufacturer may be requested to supply evidence of fastener coating and results of salt spray testing when dissimilar metals are used. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

WHEEL WELL PANELS

The body panel area around the wheel well on each side of the body shall be fabricated of aluminum diamond plate.

TORSION BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it "floats" above the chassis frame rails with vibration and torsion isolator assemblies. The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall

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be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing. There shall be a ¼" thick UHMW polymer bearing washer between the body structure and each torsion mount. This washer shall provide dissimilar metals contact between the body structure and each mount. The UHMW bearing washer shall also act as a wear pad due to its low wear material properties.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures.

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99" excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The compartments shall be vented through the structural members to below the apparatus body into the environment.

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1":

There shall be one (1) compartment ahead of the rear wheels, on the left side of the apparatus. The approximate interior dimensions of this compartment shall be approximately 36" wide by 69" high with a depth of 12.5" in the upper portion and 25.5" lower portion. The door opening shall be approximately 31" wide and 60" high.

Compartment "L2":

There shall be one (1) compartment ahead of the rear wheels, on the left side of the apparatus. The approximate interior dimensions of this compartment shall be approximately 36" wide by 33" high with a depth of 25.5". The door opening shall be approximately 31" wide and 25" high.

Compartment "L3":

There shall be one (1) compartment behind the rear wheels, on the left side of the apparatus. The approximate interior dimensions of this compartment shall be approximately 36" wide by 33" high with a depth of 25.5". The door opening shall be approximately 31" wide and 25" high.

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Compartment "R1":

There shall be one (1) compartment ahead of the rear wheels, on the right side of the apparatus. The approximate interior dimensions of this compartment shall be approximately 36" wide by 69" high with a depth of 12.5" in the upper portion and 25.5" lower portion. The door opening shall be approximately 31" wide and 60" high.

Compartment "R2":

There shall be one (1) compartment ahead of the rear wheels, on the right side of the apparatus. The approximate interior dimensions of this compartment shall be approximately 36" wide by 33" high with a depth of 25.5". The door opening shall be approximately 31" wide and 25" high.

Compartment "R3":

There shall be one (1) compartment behind the rear wheels, on the left side of the apparatus. The approximate interior dimensions of this compartment shall be approximately 36" wide by 33" high with a depth of 25.5". The door opening shall be approximately 31" wide and 25" high.

COMPARTMENT 'T-SLOT' SHELF MOUNTING

Each compartment shall have integrated 'T-Slots' precision cut into each body panel to accommodate mounting adjustable shelves, trays, and other miscellaneous equipment items. This mounting system will allow for each shelf to be full size dependent on compartment dimensions.

DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

ROBINSON BRAND ROLL-UP DOORS

Roll up doors shall be Robinson brand. Door slats to be of a double wall box frame extrusion. Exterior surface shall be flat, interior surface shall be concave to prevent loose equipment from jamming the door. Slats will be anodized to prevent oxidation. Slats to have inner-locking end shoes on every slat secured by a Punch-Dimple process. Slats shall have interlocking joints with a folding locking flange. Between each slat is a PVC/Vinyl inner seal to prevent any metal to metal contact.

Track to be one piece aluminum which has an attaching flange and finishing flange incorporated into its design which facilitates installation and provides a finished look to installation without additional trim or caulking. Track to have a replaceable side seal. Side seal prevents water and dust intrusion into the compartment.

Drip rail will have a built in replaceable wiper seal. Drip rail to be made of aluminum. Roll-up door to have a 4" diameter counterbalance to assist in lifting and to eliminate the risk of accidental closing. The door shall be secured by a full width lift bar, operable by one hand even with heavy gloves. Securing method will be a positive latch device.

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The side compartment doors shall be left a natural satin aluminum finish.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

HOSE STORAGE

A hose bed shall be provided with a minimum of forty (40) cubic feet of storage space. The hose bed shall have a slotted 1/4" aluminum flooring installed to allow drainage through the tank cavity to the ground below. The aluminum flooring shall be manufactured in discrete sections to allow for easy removal and outstanding stability. The area shall be free of sharp edges to protect the hose when loaded or distributed.

The walls of the hose bed shall be 90" tall, measured from the bottom edge of the compartments to the top flange.

HOSE BED DIVIDERS

There shall be two (2) dividers installed in the hose bed. The dividers shall be fabricated of 1/4" thick aluminum plate with a double sided reinforcement where it is attached to the adjustable slide rails. The rear of the dividers shall have a radius to provide a smooth corner. Hose payout shall be unobstructed by the dividers.

DUNNAGE AREA

A vertical bulkhead shall be installed at the front of the hose bed area, just behind the water tank fill tower, forming a storage area that is separated from the hose bed. The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

TANK CAPACITY

The tank shall be 3000 gallons in capacity.

WATER TANK LEVEL GAUGES

There shall be two (2) Class 1 "Intelli-Tank" tank level gauges one (1) on the pump panel and one (1) on the upper rear face of the body (center) mounted between the scene lights. The tank level gauge shall indicate the water level on an easy to read LED display and show increments of 1/8 of a tank. The tank level gauge will utilize a pressure transducer that mounts on the outside of the tank for sensing the water level. No probes shall be installed for the tank. The tank level gauge shall have a super bright LED 4-light display with a visual indication at nine accurate levels. A set of weather resistant connectors to connect to the digital display, to the pressure transducer and to the apparatus power shall be supplied with the tank level gauge.

The gauges shall be a model ITL.

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The third readout shall be a Class 1 "Intelli-Tank" mini remote tank level gauge located in the cab, in view of both the driver and officer.

POLYPRENE TANK

The booster tank shall be constructed of 1/2" thick polypropylene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER: The tank cover shall be constructed of 1/2" thick polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped 1/2" x 2" to accommodate the lifting eyes.

BAFFLES: The swash partitions are manufactured of 1/2" polyprene. All partitions are equipped with vent and air holes to permit movement of air and water between compartments to provide to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING: The tank shall rest on the sub-frame cross members with an unsupported area not to exceed 530 square inches on tanks up to 40" in height. On tanks over 40" in height, an unsupported area of not more than 400 square inches must be maintained. All tanks shall be isolated from those cross members with a minimum of 2" x 1/4" hard rubber strips that are 60 durometer in hardness. The tank shall sit cradle mounted in the under body sub-frame and shall be completely removable without disturbing the body side panels. The sub-frame shall consist of 3" x 1 1/2" channel cross members and 3" x 1 1/2" channel which shall extend around the entire perimeter of the tank and be welded to the cross-members. The channels will keep the tank from shifting front to back or side to side.

FILL TOWER: Fill tower base shall measure approximately 25" long x 12" wide x 14" high and incorporate a "anti-surge" baffle inside the tower and the opening shall be approximately 14" x 14". The tower will have a 1/4" thick removable polyprene screen and a polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 1/4" thick polyprene screen to prevent debris from falling into the tank. The fill tower shall have a 6" overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity. A rear secondary tank vent shall be provided to prevent entrapment of air when filling on a decline and will vent next to the overflow.

The fill tower shall be located in the left front hose bed.

SUMP: The sump will be constructed of 1/2" polyprene and be located inline with the tank suction valve. There shall be a 4" schedule 40 polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2" above the sump.

The sump shall have a 3" plug for use in draining and cleaning out the tank.

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OUTLETS: In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

REAR DUMP VALVE

A 10" square Newton brand stainless steel dump valve shall be installed on the water tank. The valve shall be directly bolted to the water tank. The dump valve shall be equipped with an electric actuator controlled by a locking momentary toggle switch located near the valve on the apparatus body. The location of the valve control shall be positioned away from the immediate dumping area, but close enough to monitor the dumping procedure. The valve will not operate unless the Emergency Master switch is in the on position.

The dump valve shall have controls on the right and left rear face of the vehicle and on the rocker switch panel in the cab to facilitate remote operation of the valve. An indicator light shall also be provided in the cab to show if the valve is not in the fully closed position.

The valve shall be located on the flat back wall of the vehicle.

STAINLESS STEEL SLIP-ON EXTENSION

There shall be a custom length stainless steel slip on 10" square dump chute extension provided to fit the dump valve specified.

The extension shall be at a 90 degree angle. The extension shall be 26" x 36", with provisions to hold the extension to the chute when attached. The extension shall also have a manual extension to extend as far as possible to the side of the unit installed.

There shall also be an aluminum tray (center) mounted on top of the tailboard to stow the extension when not in use. There shall be two (2) velcro hold downs provided, one (1) on the rear face of the body for the upper portion and one (1) on the tray.

CURBSIDE REAR ACCESSIBLE LADDER COMPARTMENT

The ladders will be stowed in a compartment located beside the booster tank. There shall be a hinged door, matching the rear overlay material, on the rear of the compartment with a push button type latch to secure the contents inside. The door shall be switched to the "Open Door Indicator Light" in the cab to alert the driver if the door is not closed.

The compartment shall be mounted on the curbside of the booster tank with the ladders lying on their side.

The compartment shall be large enough for one (1) 10' aluminum attic ladder, one (1) 14' aluminum roof ladder, one (1) 24' two section Duo-Safety aluminum extension ladder, and two (2) pike poles to be stowed horizontally in individual divided slots, so one item may be removed without disturbing the others. Each slot shall have a plastic angle installed for the ladders to slide on. There shall be a stop in the front of each compartment to prevent the items from

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sliding forward.

REAR ACCESSIBLE PVC SUCTION COMPARTMENTS

There shall be two (2) compartments located at the rear of the body that extend forward above the enclosed ladder and folding tank compartments, one (1) each side. There shall be a hinged door, matching the rear overlay material, at the rear of each compartment to access the compartment. The door shall be switched to the "Open Door Indicator Light" in the cab to alert the driver if the door is not closed.

Each compartment shall accommodate one (1) length of 6" x 10' PVC suction hose with long handles.

STREETSIDE REAR ACCESSIBLE FOLDING TANK COMPARTMENT

The folding tank will be stowed in a compartment located beside the booster tank. There shall be a hinged door, matching the rear overlay material, on the rear of the compartment with a push button type latch to secure the contents inside. The door shall be switched to the "Open Door Indicator Light" in the cab to alert the driver if the door is not closed.

The compartment shall be mounted on the streetside of the booster tank with the folding tank lying on it's side.

The compartment shall accommodate a 3000 gal folding tank.

ROLLER GUIDE FOR FOLDING TANK

A roller guide shall be installed at the rear of the folding tank compartment floor mounted to aid in the loading and unloading of the tank.

SHELVING

The shelves shall be fabricated of 3/16" thick 3003 grade or higher aluminum with four side flanges.

The shelves shall be as wide as possible and fully adjustable up and down.

The shelves shall be installed in the following compartments:

The trays shall be approximately 25" deep.

L1, L2, R1, R2

ROLL OUT TRAY

The tray shall be fabricated of 3/16" thick 3003 grade or higher aluminum with four side flanges, corner welded for maximum strength.

The rollout tray system shall incorporate a pair of cadmium plated, ball bearing roller slides with

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a pneumatic hold-open and closed device.

The tray shall be as wide as possible.

FLOOR MOUNTED TRAY

The roll-out system shall be bolted to the compartment floor for rigid and sturdy mounting.

The tray shall be approximately 30" wide x 24" deep inside measurements, to hold the customer generator that is 29-1/8" wide x 22" deep x 23" tall.

The tray shall be installed in the following compartment:

R3

The roll-out tray shall be rated for 220 lbs. and extend to 100% of the slide capacity.

WALL MOUNTED TOOL BOARDS

There shall be two (2) tool boards mounted. Each tool board shall be bolted to the back wall of the compartment spaced 1/2" away with poly spacers.

Each tool board shall be constructed of aluminum.

Locations to be upper portion of L1,R1 compartments.

FENDERETTES

Four (4) polished stainless steel fenderettes shall be provided on body rear wheel well openings, two (2) each side. A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

OVERLAYS

All aluminum used in an overlay area shall be bright type 3003, 1/8" thick diamond plate material coated with 3M sealant and adhesive on the back sides to protect and to put an insulating barrier between dissimilar metals to assist in corrosion resistance.

The following areas shall have aluminum diamond plate overlays installed:

- The front faces of the apparatus compartments as well as the front header of the hose bed area.
- The entire back of the apparatus body including both the side compartment and rear compartment back areas.

The catwalks shall be painted to match the body color.

The catwalks shall be approved stepping surfaces overlaid with embossed diamond plate

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material approved by the latest NFPA standards for abrasiveness.

GUSSETED REAR STEP / PLATFORM

The rear step shall be eight (8) inches in depth and shall span as wide as possible between the rear folding steps. The step shall be located 20" below the hose bed floor (center) mounted above the dump chute. The step shall be constructed of a 7" wide piece of "Diamondback" grip material spaced away from the back of the body 1" to provide an 8" deep stepping surface. The step shall be mounted on the flat back of the apparatus with gusset-type mounting to provide sufficient support for loading hose and gaining access to the hose bed area. The step shall be constructed of a grip material meeting the latest recommendations of NFPA 1901.

KNURLED SST HANDRAIL SPECIFICATIONS

All handrails shall be 1 1/4" in diameter, constructed of knurled #3 polished stainless steel tubing. There shall be chrome plated brackets with a rubber gasket installed between the body and the bracket. There shall be a 2" minimum clearance between the bracket and the body. The following handrails shall be installed at the approximate lengths noted:

10" HANDRAILS

Two (2) 10" handrails shall be mounted one (1) on each side on top of the catwalks forward portion.

42" HANDRAILS

One (1) 42" horizontal handrail shall be mounted below the hose bed.

Two (2) 42" vertical handrails shall be mounted on the rear face of the body, one (1) each side inboard of the enclosed compartment.

TOW EYES

There shall be two (2) tow eyes furnished one (1) on each rear frame rail. The tow eyes shall be screw in type to the frame rails and when installed extend outside the rear vertical wall. The tow eyes are to have an inside diameter of approximately 3" and shall be painted.

ELECTRICAL MANAGEMENT SYSTEM

The apparatus shall be equipped with the Crimson Fire Multiplexed Electrical System. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of (24) output channels and (24) input channels. All inputs and outputs will be configured into a scaleable electrical harness utilizing Deutsche connectors. The nodes must be waterproof and not require special mounting requirements.

The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable.

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Placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

The Crimson Fire multiplex system shall be field-re-programmable and re-configurable by any authorized dealer or service center. This complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, headlamp flasher, door open notification system, interlock modules, separate volt meter and ammeter and temperature monitor.

The Base System Shall Include:

- Total Load Management
- Load Shedding Capabilities
- Load Sequencing Capabilities
- “On-Board” Diagnostics Readout
- Very Reliable, Solid-State Hardware
- Error Reporting
- Display Analog Data
- Continuous system monitoring and reporting
- Emergency warning lamp flasher
- Door Ajar System
- Field Configurable
- Expandability Capabilities
- Advanced PC Diagnostics

As-built wiring harness drawings and a master circuit list of electrical circuits that Crimson Fire installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions. Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end.

LED DOT LIGHTING

There shall be five (5) lights located on the rear of the vehicle. Three (3) of the lights shall be mounted as high as possible on the rear face of the body for use as identification lamps. Two (2) lights shall be located as high and wide as possible, one each side, for use as clearance lamps. There shall be two (2) additional lights between the front and rear axles for identification and turn signaling as required. The lights shall be Weldon brand 9186-1500 series LED red and amber markers.

REAR TAIL LIGHT CLUSTER

There shall be a rear tail light cluster furnished and installed in a polished bezel at the rear of the apparatus, one each side. The 4684-0200 series cluster shall be manufactured by Weldon Technologies, Inc. and consist of the following:

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- 1 - Weldon LED series red brake light
- 1 - Weldon Clear backup light (Halogen)
- 1 - Weldon LED series amber turn signal light populated in the shape of an arrow

Each tail light cluster shall be mounted on a removable panel for easy access to the electrical distribution centers at each rear corner of the apparatus body.

REAR SCENE / BACKUP LIGHTS

The scene/reverse lights shall automatically turn on when the parking brake is engaged and shut off when the parking brake is disengaged.

PUMP/TRANSVERSE COMPARTMENT LIGHTING

There shall be two (2) 12 volt work lights installed in the pump/transverse compartment. Each light shall be activated with a switch located on each light and shall be enclosed in an ABS case. Each light head shall be removable and have a retractable wire that can be extended a minimum of 10 feet to allow maintenance personnel to relocate and direct the light as needed.

COMPARTMENT LIGHTING

There shall be two (2) lights mounted in body each compartment. There shall be one (1) light on the forward wall and one (1) light on the rear wall. Each light shall be mounted in such a way that it is vertically adjustable with wiring slack to allow for future repositioning. The lights in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors. The lights shall be manufactured by Weldon and be model #2030.

Compartments with shelves shall one (1) light above the shelf and one (1) light below the shelf.

UPPER HALOGEN LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

ZONE A:

There shall be a 60" light bar with four rotators furnished. The bar shall have four (4) sections with a rotator in sections 1,2,3 and 4. One "V" shaped mirror shall be between section 1 & 2, and one "V" shaped mirror shall be between section 3 & 4. Sections 1 & 4 shall be red with sections 2 & 3 being clear. The rotators in sections 2 & 3 shall deactivate when the parking brake is set.

The light bar shall be a Whelen Centurion series model #C40000N.

ZONES B&D:

The side forward area shall be covered by the Zone A lighting.

ZONE C:

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There shall be two (2) beacons furnished and installed in the upper outer corners of the rear of the apparatus, on top of the catwalk.

The rotators shall be Whelen model # RB6TRP.

Both lenses shall be red.

LOWER LED LIGHTING PACKAGE

ZONE A:

There shall be two (2) LED lights, 4" high x 6" wide, mounted in the front grille area of the chassis.

Whelen brand model 60 LED lights.

The lights shall have red lenses.

ZONES B&D:

There shall be six (6) LED lights, 4" high x 6" wide, surface mounted along the sides of the apparatus.

Whelen brand model 60 LED lights.

One (1) cab area, one (1) pump house area and one (1) tailboard.

The lights shall have red lenses.

ZONE C:

There shall be two (2) LED lights, 4" high x 6" wide, mounted on the rear of the apparatus body. Whelen brand model 60 LED lights.

LOWER ZONES B&D CAST ALUMINUM LIGHT HOUSING

A cast aluminum light housing shall be used for the rearmost warning light in zones B&D to ensure the light is mounted as far rearward as possible.

WARNING LIGHT SWITCHING

All warning lights shall be activated by the RED master warning light switch.

A second switch shall be added for the clear lights. The clear lights shall de-activate with the switch in the on position.

12 VOLT SCENE LIGHTS

There shall be two (2) pair of 12 volt scene lights furnished. The lights shall be mounted two (2)

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on each body side. They shall be 9" wide x 7" tall and have a built in downward angle. The lights shall be manufactured by Whelen and be model 900CA0CR.

One (1) at the forward corner upper portion of the body and one (1) at the rearward upper corner of the body each side.

The scene lights shall be activated by a switch on the rocker switch panel labeled as follows:

One (1) left scene
One (1) right scene

The scene lights shall activate with or without the parking brake set.

There shall be one (1) pair of 12 volt scene lights furnished. The lights shall be mounted on the upper rear face of the body below the warning lights, one (1) each side. The lights shall be 9" wide x 7" tall and have a built in downward angle. They shall be manufactured by Whelen and be model 900CA0CR.

The scene lights shall be activated by a switch on the rocker switch panel labeled as follows:

One (1) rear scene.

The scene lights shall activate with or without the parking brake set.

TELESCOPING LIGHTS

There shall be two (2) telescopic flood lights furnished and installed. Each assembly shall have a telescopic tube with a friction type lock and a 12 volt, 300 watt light head that is adjustable in height capable of rotating 360 degrees. The lights shall be wired into the vehicle electrical system and have an on/off switch. The entire light assembly shall be UL Listed for the fire service. The lights shall be manufactured by Fire Research and be model # TC510-TC-ON.

Two (2) light pole(s) shall have a friction type lock to hold the pole in the extended position. Each shall be raised from the top with a grab handle located on the light head. There shall be a retractile cord at the pole bottom, connected to the circuit breaker panel on the apparatus.

Two (2) lights shall be mounted in the forward corners of the pump compartment, towards the chassis cab.

LICENSE PLATE BRACKET

Provisions for mounting a license plate shall be installed on the apparatus in conjunction with the proper illumination to meet DOT requirements.

EQUIPMENT

The following equipment shall be supplied by Crimson Fire.

ZICO WHEEL CHOCKS

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two (2) sets of NFPA compliant Ziamatic folding wheel chocks model # SAC-44 shall be supplied with the apparatus

ZICO WHEEL CHOCK MOUNTING BRACKETS

two (2) set Ziamatic folding wheel chock underbody horizontal mounts model # SAC-44-H shall be furnished and installed on the apparatus under the body in front of the rear wheels.

GROUND LADDERS

one (1) Duo-Safety 24' two (2) section aluminum extension ladder model 900A.

one (1) Duo-Safety 14' aluminum roof ladder with folding hooks model 775A.

one (1) Duo-Safety 10' folding aluminum attic ladder model 585A.

PIKE POLES

one (1) Duo-Safety 8' pike pole with fiberglass handle.

one (1) Duo-Safety 6' pike pole with fiberglass handle.

PROVIDED CONFERENCES

The department shall be provided the following conferences.

PRE-CONSTRUCTION CONFERENCE

There shall be a pre-construction conference held, prior to manufacturing.

The meeting shall be held at the Fire Department.

FINAL INSPECTION CONFERENCE

There shall be a final-construction conference held, prior to delivery of the completed apparatus.

Three (3) individuals from the Fire Department. The department to pay there own expenses to, from and while at Crimson Fire, at Brandon SD.

DELIVERY

The completed Apparatus, to insure proper break-in of all components while still under warranty, shall be delivered under it's own power, to the Fire Department.

The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

TRAINING

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Crimson Fire, shall have a qualified delivery engineer instruct the Fire Department Personnel/Motor Pool in the proper operation, care and maintenance of the equipment delivered.

The firefighter/operator training/motor pool shall be conducted after the vehicle is delivered and accepted by the department, at a time mutually agreed on by both the " Department " and " Crimson ", for one (1) day of training.

APPARATUS PRE-DELIVERY INSPECTION

The following shall be performed by the Dealership service center before the apparatus is delivered to the fire department:

Chassis:

- * All fluid levels shall be checked and filled.(If needed)
- * The drive train shall be completely lubed.
- * All belts and brakes shall be checked for proper adjustment.
- * The batteries, electrical system and components shall be completely checked.
- * Secondary braking system.
- * The warning light/siren/air horn systems shall be completely checked.
- * All shoreline plug-ins and all components energized by the shoreline.
- * Chassis door adjustments.
- * The tires checked for proper pressure.

Pump:

- * All fluid levels shall be checked and filled.(If needed)
- * Pump engagement and operation of all components, including foam system.
- * All gated valves and linkages shall be completely lubed.
- * Water shall be flowed thru all discharges.
- * All gated valves shall be checked for leaks and rod adjustments.

Body:

- * The warning light system shall be completely checked.
- * The electrical system shall be completely checked.
- * All shoreline plug-ins and all components energized by the shoreline.
- * Body door adjustments.

Final:

- * The unit shall be road tested.
- * The unit shall be completely cleaned, inside and outside.
- * The unit shall be filled with fuel.

DEALER SUPPLIED EQUIPMENT PROVIDED WITH THE COMPLETED APPARATUS

The following equipment shall be supplied by the Dealership with the delivered apparatus.

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Mounting shall be provided for the equipment specified to mount.

REFLECTIVE STRIPING WITH BORDER

There shall be a 4" inch black reflective "Scotch-lite" stripe with a gold border stripe on each side, applied to the outside perimeter of the chassis and apparatus.

The reflective striping shall be applied around the perimeter of the front of the apparatus in a straight line. In addition, when the stripe reaches the front area of the body, the stripe shall jog in a 'Z' pattern, then continuing to the rear of the apparatus at a slightly higher level.

BLACK REFLECTIVE LETTERING

14" Black reflective letters shall be provided and applied to the apparatus with black shading and borders, per Fire Departments direction.

KEEP BACK WARNING SIGN

One (1) "KEEP BACK 300 FEET" sign with 3" reflective letters shall be provided in the rear step area.

GOLD MALTESE CROSS

A Maltese-Cross design of Gold with shading and borders shall be supplied, per fire department direction.

PVC SUCTION HOSE

Two (2) 6" x 10' sections of PVC flexible light weight suction hose. The ends shall be light weight couplings with long handle female and rocker lug male with NST threads.

Kocheck: 2P601

6" NSTFSLH LOW LEVEL SUCTION STRAINER

One (1) 6" NST female swivel long handle low level suction strainer with external screen.

Kocheck: LL60

TFT CROSSFIRE MONITOR PACKAGE

One (1) XFC-32 Crossfire Monitor Package.

The package contains the following:

One (1) XFT-NJ Crossfire portable monitor top.

One (1) XFH-1SP SAFE-TAK Ground base with with two (2) 2-1/2" NST inlets.

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One (1) M-R-NJ Automatic dual stream 150-1250gpm nozzle.

TFT CROSSFIRE MONITOR TOP MOUNT ADAPTER

One (1) XFF-APL 3" Top mount adapter.

TFT HM-VPGI 1-1/2" 70-200 GPM MID-MATIC NOZZLE

Two (2) Task Force Tip HM-VPGI 70-200gpm mid-matic pistol grip nozzles with 1-1/2" swivel inlet.

TFT: HM-VPGI

TFT H-2BLITZ 2-1/2" 95-300 GPM HANDLINE PLAYPIPE

Two (2) Task Force Tip H-2BLITZ 95-300gpm handline playpipes with 2-1/2" swivel inlet.

TFT: H-2BLITZ

TFT 5" NSTFSLH X 6" RIGID NSTM W/BLEEDER

Two (2) 5" NST female swivel short handle x 6" rigid NST male ball intake relief valve with bleeder.

TFT: AB8NX-NT