



Base Airwolf C3 4-door 750 water

FIRE APPARATUS WARRANTY

The Rosenbauer (General Division) warrants each new motorized fire apparatus manufactured by General Safety Equipment for a period of ONE YEAR from the date of delivery, except for the chassis and other components noted herein which are covered by a separate manufacturers warranty.

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

All warranty work performed must be completed at the General Safety Equipment factory or a General Safety Equipment approved service center. The expense of any transportation to or from the factory or approved service center shall be borne by the purchaser and is not an item covered under this warranty.

The warranty on the chassis and chassis supplied components, fire pump, water tank, generator, electrical components and other devices not manufactured by General Safety Equipment is limited to the warranty and warranty terms of the manufacturer thereof.

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

This warranty shall not apply to those items which are usually considered normal maintenance and upkeep services, including, but not limited to, electrical lamps, valve seals, normal lubrication and/or proper adjustment of minor items.

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

ROSENBAUER PUMP WARRANTY

Rosenbauer America warrants, to the original buyer only, that products and parts manufactured by Rosenbauer America will be free from defects in material and workmanship under normal use and service for a period of two (2) years from the date the product is first placed in service, or two and a half years from the date of shipment by Rosenbauer America, whichever period will be the first to expire; provided the buyer notifies General Safety Equipment in writing, of the defect in said product within the warranty period, and said product is found by Rosenbauer America to be conforming with the aforesaid warranty.

When required in writing by General Safety Equipment, defective products must be promptly returned by the buyer to the General Safety plant or at such other place as may be specified by General Safety with transportation and other charges prepaid. An RGA is required for all products and parts and may be requested by phone, fax or mail. The aforesaid warranty excludes any responsibility or liability of Rosenbauer America for:

(a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes or improper maintenance, or attributable to written specifications or instructions furnished by buyer;

(b) defects in products manufactured by others and furnished by Rosenbauer America hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, Rosenbauer America will assign to the buyer, if requested by Buyer;

(c) any product or part, altered, modified, serviced or repaired other than by Rosenbauer America, without its prior written consent.

(d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation.

(e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, etc.)

All other warranties are excluded, whether expressed or implied by operation of law or otherwise, including all implied warranties of merchantability or fitness for purpose. Rosenbauer America shall not be liable for consequential or incidental damages directly or indirectly arising or resulting from breach of any of the terms of this limited warranty or from the sale, handling, or use of any other product or part. Rosenbauer America liability hereunder, either for breach of warranty or for negligence, is expressly limited at Rosenbauer America option:

(A) to the replacement at the agreed point of delivery of any product or part, which upon inspection by Rosenbauer America or its duly authorized representative, is found not to conform to the limited warranty set forth above, or

(B) to the repair of such product or part, or

(C) to the refund or crediting to buyer of the net sales price of the defective product or part.

Buyer's remedies contained herein are exclusive of any other remedy otherwise available to the buyer.

20 YEAR TRANSFERABLE BODY WARRANTY

The Rosenbauer (General Division) warrants the 3/16" aluminum and 12 gauge stainless steel bodies, fabricated by General Safety Equipment, under normal use and with reasonable maintenance, shall remain structurally sound for a period of TWENTY (20) years.

Warranty coverage is transferable to second owner, if applicable, with proper notification made to General Safety Equipment.

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

GENERAL SAFETY EQUIPMENT MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE APPARATUS BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

General Safety Equipment will replace without charge, repair or make a fair allowance for any defect in

material or workmanship demonstrated to its satisfaction to have existed at the time of delivery or not due to misuse, negligence, or accident. If General Safety Equipment elects to repair this body, the extent of such repair shall be determined solely by General Safety Equipment, and shall be performed solely at the General Safety Equipment factory. The expense of any transportation to or from the factory shall be borne by the purchaser and is not an item covered under this warranty.

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

PAINT WARRANTY

The PPG seven year paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of SEVEN (7) years beginning the day the vehicle is delivered to the purchaser.

The areas as outlined on the Guarantee Certificate, will be covered for the following paint failures:

GUARANTEE INCLUSIONS:

FULL APPARATUS BODY MANUFACTURED AND PAINTED BY GENERAL SAFETY EQUIPMENT:

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

GUARANTEE EXCLUSIONS:

- Paint deterioration caused by blisters or other film degradation due to rust or corrosion originating from the substrate.
- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy duty pressure washing, or aggressive mechanical wash systems.
- Paint deterioration caused by abuse, accidents, acid rain, chemical fallout or acts of nature.
- Custom finishes, exotic finishes or any finish other than standard finish procedures.
- Failures resulting from product misuse or abuse.
- Repairs done over previously refinished areas unless stripped to bare metal or appropriate substrate.
- Claims presented without proper warranty documentation.
- Failure on finishes containing Non PPG or Non PPG finishes approved products.
- Failure on finishes performed by Non PPG Certified Refinish Technicians.
- Failure on finishes performed by Non PPG Certified Repair Centers.
- Failure on finishes performed by PPG Certified refinishes who have allowed their certification to expire.

UPF POLY-TANK IIE THE ALL-OUT NO FAULT LIFETIME WARRANTY

UNITED PLASTIC FABRICATION INC. Warrants each UPF POLY-TANK IIE Booster/Foam tank to be free from manufacturing defects in material and workmanship for the service life of the vehicle (vehicle must be actively used in fire suppression). The UPF POLY-TANK IIE must be installed in accordance with the United Plastic Fabricating installation manual. Every UPF POLY-TANK IIE is thoroughly inspected and tested for leaks before leaving our facility. Should any problems develop with your UPF POLY-TANK IIE booster/foam tank and will not meet performance criteria during the service life of the vehicle, notify UPF in writing or call our TOLL FREE SERVICE HOT LINE 1-800-USA-POLY. Provide UPF with the serial number and a description of the problem. If the tank problem would render the truck out of service, UPF will dispatch a service technician WITHIN 48 HOURS (2 DAYS) to repair the tank.

(This time period is for North American Only). If the vehicle can remain in service, UPF will dispatch a service technician with a mutually agreed upon time period.

We will repair, or at our option, replace the tank with a new UPF POLY-Tank IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK IIE. This warranty will not cover tanks that have been improperly installed, misused or abused, and the serial number must not have, been altered, defaced or removed. UPF will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF UNITED PLASTIC FABRICATION, INC.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly canceled. UNITED PLASTIC FABRICATION, INC. Neither assumes, nor authorizes any person supposing to act on its behalf, to change, nor assume for it, any warranty or liability concerning its product.

IN NO EVENT WILL UNITED PLASTIC FABRICATION, INC BE LIABLE FOR AN AMOUNT IN EXCESS OF THE PRESENT RETAIL, PURCHASE PRICE PLUS INSTALLATION AND REMOVAL COST OF THE BOOSTER TANK, FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE ARISING OUT OF FAILURE OF ITS PRODUCT.

This warranty give you specific legal rights, and you also may have other rights, which vary from state to state. Some states do not allow exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

ADVISORY CIRCULAR

This apparatus will be constructed in accordance with and meet the current FAA Advisory Circular No. 150/5220-10D and NFPA 414.

VEHICLE TILT ANGLE CERTIFICATION

A vehicle tilt angle certification test shall be performed on the completed apparatus upon completion of the unit at the apparatus manufacturers factory.

The test shall be performed with all requested equipment properly placed and installed.

A metal data plate shall be affixed to the drivers door of the vehicle. This data plate shall list the following: vehicle empty weight, maximum gross weight, the actual front and rear axle loaded weights, and the recorded tilt table angle(s) achieved for both the left and right tilt angles.

This test shall be conducted on a tilt table assembly, meeting SAE J2180, static rollover threshold for heavy trucks.

The vehicle shall be restrained and tilted until the vehicle tilt or slide angle can be positively determined. No Exceptions are allowed to this tilt angle certification requirement.

VERTICAL CHASSIS EXHAUST

The chassis shall have a vertical exhaust system on the passenger side of the apparatus. There shall be a ventilated protective guard installed around the exhaust pipe.

FRONT BUMPER GRAVELSHIELD

There shall be a horizontal gravelshield fabricated from bright 3/16" aluminum treadplate installed at the front bumper to cover the area between the bumper and the cab.

CAB STEPS

The existing chassis cab steps shall be used for entering and egress of the cab.

CHASSIS PREPARATION

Prior to installation of the fire pump, apparatus body, or cab steps, all components which extend out beyond the chassis frame rails shall be removed and relocated to the area within the frame rails, allowing for maximum side depth compartmentation.

FRONT MUD FLAPS

One (1) pair of mud flaps shall be installed behind the front wheels of the apparatus using stainless steel brackets with stainless steel threaded fasteners and Ny-Lok nuts.

REAR MUD FLAPS

Heavy duty black rubber mud flaps shall be furnished and installed behind the rear wheels of the vehicle. Mud flaps shall extend the full width of the rear duals, and are to be attached to heavy stainless steel angle support brackets with stainless steel threaded fasteners and Ny-Lok nuts.

AIR HORNS

Two (2) chrome plated Grover "Stuttertone" air horns shall be provided and mounted on the sides of the engine hood. Air horns shall be controlled by the steering wheel horn button and by a floor switch on the right side cab floor.

A pressure protection valve to prevent the use of air horns or other air operated accessories when the system air pressure drops below 80 psi shall be provided.

MANUFACTURERS PUMP TEST

The pump shall undergo a three (3) hour pump test provided by the body builder to insure proper pressures and flow rates prior to delivery of the completed apparatus.

The pump shall be tested at the manufacturer's plant to meet the requirements of FAA-5220-10D circular for Rapid Intervention Vehicles class 1, 2 or 3, and NFPA 414 2007 edition table 4.1.1d for vehicle water tank capacity 120 to 528 gallons.

500 GPM COMBINATION NORMAL & HIGH PRESSURE PUMP SYSTEM W/ PTO DRIVE SYSTEM

A Rosenbauer Model NH fire pump shall be rear mounted with a rated capacity of 500 GPM. In addition to meeting NFPA 1901 requirements, it shall be constructed and mounted in accordance with the following specifications.

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

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

The pump shall incorporate a high pressure, three-stage pump. The high-pressure side shall be capable of developing 100 GPM at 600 PSI simultaneously while pumping the rated volume specified above.

The pump shall be equipped with a thermal protection device which monitors the water temperature of the pump and relieves water when the temperature inside the pump exceeds 120 degrees Fahrenheit.

The high-grade light alloy impellers shall be accurately balanced and mounted on a stainless steel pump shaft. The shaft shall be supported by three roller bearings; two located in the gearbox and one in the suction inlet. Bearings shall be protected from water and sediment by maintenance free self-adjusting mechanical seals.

The main pump body shall be easily removable without disturbing setting of the pump on the chassis. The pump body is to be of high quality seawater resistant light alloy. All parts that come into contact with water to be special treated light alloy or stainless steel.

The pump manufacturer shall test the pump for 10 minutes hydrostatically at a pressure of 500 psig. Hydrostatic Certification by the pump manufacturer shall be provided.

Fire pump shall incorporate high strength helical gear drive single stage transmission. Pump drive system shall be with a heavy duty PTO system bolted directly to the chassis transmission. There shall be a heavy duty drive line assembly with hanger bearings furnished from the PTO to the rear mounted pump transmission.

The pump shall be provided with a plate giving the rated flow at "capacity" and "pressure" test pressures, together with the R.P.M. Of the engine at those pressures and deliveries and mounted in clear view of the pump operators panel. Data plate shall include model and serial numbers of the pump body and chain transmission, hydro and discharge test pressures, and the date of pump and transmission manufacture.

HIGH PRESSURE RELIEF VALVE

A relief valve shall be plumbed to the high pressure side of the pump to prevent water spiking.

OILESS PRIMING SYSTEM

The pump shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. It shall be capable of developing a vacuum of 22" at an altitude of up to 1000 feet.

A high capacity, electrically driven automatic double piston priming pump shall be provided with a manual back up.

A vacuum test with a capped suction of at least 20' long shall develop 22" of vacuum and hold a vacuum with a drop not in excess of 10" in five minutes.

PUMP REMOVAL

The pump and plumbing shall be of a modular design and shall be completely removable as one unit from the top of the apparatus as a complete unit for future removal if necessary.

PUMP SHIFT

The PTO pump shall be engaged through an electrically operated Hot Shift control switch located within the truck cab.

HEAT EXCHANGER

A heat exchanger shall be provided on the chassis cooling system. The heat exchanger shall not allow

mixing of the chassis coolant and water from the fire pump.

A gated discharge line shall be installed to provide water from the fire pump to the chassis heat exchanger to assist in engine cooling during pumping operations. The heat exchanger line shall be controlled at the pump operator's panel.

PSG GOVERNOR/ENGINE MONITORING SYSTEM

A Fire Research model INCONTROL pressure governor and all-in-one instrument monitoring module shall be provided and mounted on the pump gauge panel. The unit shall maintain a steady pump discharge pressure by controlling engine speed or hold a selected engine RPM. It shall offer complete engine control and remote display in a single compact unit. The INControl shall operate in one of two modes, pressure or RPM. In pressure mode the INControl shall maintain a constant pump discharge pressure. The discharge pressure shall be monitored and compared to the selected pressure setting, the engine RPM shall vary to keep the discharge pressure at the selected setting. In RPM mode the INControl shall maintain a constant engine RPM. The pump discharge pressure shall be monitored and can vary but, as a safety feature it will be limited to an increase of 30 PSI. If the discharge pressure increases 30 PSI the governor will automatically lower the engine RPM to prevent a high pressure surge. The module shall have three (3) 4-digit LED displays for pump discharge, pump intake, and engine RPM. An LED bar graph shall be provided to show PSI or RPM setting depending on the mode, and three (3) LED bar graphs that provide a constant display of the battery voltage, engine coolant temperature, and engine oil pressure.

All controls and indicators are located on the front of the control module.

Features:

- Power Up in Pressure Mode
- Automatic Regulation of Pump Discharge Pressure
- Manual Control of Pressure or Engine RPM Settings
- Field Programmable Presets
- Diagnostic Capabilities
- No Pressure or RPM Variation When Changing Modes
- Limits Increase of Pressure When in RPM Mode
- Recognition of No Water Condition With Automatic Response
- Interlock Signal Recognition and OK To Pump LED
- Return to Engine Idle With the Push of a Button

INTAKE RELIEF VALVE

A 2-1/2" intake relief valve preset at 125 psi shall be permanently installed on the suction side of the fire pump. The valve shall have an adjustment range of 75 psi to 300 psi, and shall be designed to automatically self-restore to a non-relieving position when excessive pressure is no longer present.

Discharge side of the intake relief valve shall be plumbed away from but, visible to the pump operator, and shall terminate with a 2-1/2" NST male chrome threaded adapter, marked with an engraved tag "Intake pressure relief outlet - Do Not Cap".

REAR PUMP ROLL UP DOOR

A roll up door shall be provided and installed around the rear face opening of the pump to prevent road grime from entering the pump area.

STEAMER

There shall be one steamer inlet furnished. Steamer inlet shall be located on the rear of the body. The suction inlet shall have 4" NST threads. The suction inlet shall have a removable strainer provided inside

external inlet.

PUMP SUCTIONS

Each gated suction inlet shall include a Class One 3/4" cast bronze 1/4 turn drain valve complete with a chrome plated bronze ball, reinforced teflon seals, and blow-out proof stem rated to 600 psi. A chrome plated zinc handle shall be provided on each drain valve, complete with a 1" X 1 1/2" recessed ID label and located adjacent to the intake fitting.

Each 3" and larger gated pump suction intake shall have an operating mechanism which will not permit changing the position of the flow regulating element of the valve from full close to full open, or vice versa, in less than 3 seconds.

All specified suction intake caps shall be capable of withstanding a minimum of 500 psi.

One (1) 2 1/2" suction located at the rear face of the apparatus body.

CAP, REAR SUCTION

The rear suction shall be equipped with a chrome plated long handled design cap capable of withstanding 500 psi.

STAINLESS STEEL PLUMBING/HIGH PRESSURE HOSE

All plumbing shall be a combination of stainless steel rigid plumbing and high pressure hose.

BUMPER TURRET

An Akron model 3463 Fire Fox 12 volt electrically controlled monitor and nozzle shall be furnished and installed on the front bumper of the apparatus. The unit shall be capable of flowing up to 250 GPM. Controls for the monitor shall be mounted inside the chassis cab. The monitor shall be plumbed with two (2") inch flexible hose with stainless steel couplings and have a two (2") valve. The valve shall be electrically operated with valve control located in chassis cab. There shall be a 3/4" drain furnished in the supply line to the monitor.

When a bumper turret is required, proper switching shall be provided in the cab for operation of normal pressure water to the turret within reach of the Driver and Officer.

FOAM SYSTEM

A Rosenbauer Fix Mix automatic foam proportioning system shall be provided and direct mounted to the water pump.

The system shall be capable of providing constant proportioning and shall deliver foam at a proportioning rate from 3% or 6% manually selectable at the pump.

Controls for the foam system shall be provided on the pump panel and in the cab.

When a bumper turret is required, proper switching shall be provided in the cab for operation of high pressure water to the turret within reach of the Driver and Officer.

Foam shall be plumbed to all discharges.

FOAM CONCENTRATE TANK

One (1) 90 gallon polypropylene foam concentrate tank shall be provided and installed within the main booster water tank, unless otherwise specified, to allow easy access for filling. Tank shall be plumbed to the on board foam system.

FOAM TANK DRAIN/FILL CONNECTION

One (1) 1 ½" drain/fill connection with manually operated ball valve and internal strainer shall be located on the drivers side.

Fill connection shall have 1 ½" NSTM fitting unless otherwise specified.

AFFF

90 gallons of AFFF in 5 gallon buckets shall be provided with the apparatus.

HIGH PRESSURE VALVE

A 1 1/2" electrically operated valve shall be provided to feed the high pressure manifold. The valve shall be controlled from the cab and rear of truck and shall be properly labeled.

DRY CHEMICAL SYSTEM

AGENT CONTAINER(S) AND COMPONENTS

A 500 lb. Dry Chemical System shall be provided and mounted on the apparatus.

The system shall be constructed and stamped in accordance with the ASME "Code for Unfired Pressure Vessels" and hold at least 500 usable lbs of a potassium-based dry chemical fire extinguishing agent.

The fill opening shall be easily accessible and provided with a compatible funnel to permit filling from dry chemical storage containers.

The pressure relief device shall conform to the appropriate ASME codes that will protect both the container and the low pressure piping.

A system pressure gauge shall be provided at the dry chemical reservoir.

A check valve shall be provided in the gas piping to prevent the agent from being forced back into the propellant gas line.

Two (2) spring loaded locking agent system activation control switches shall be located adjacent to the dry chemical hose reel, one (1) to charge the nitrogen cylinder and one (1) to control the chemical valve.

The agent pressurization system shall ensure fluidization of the dry chemical at the time of activation.

There shall be provisions for purging agent from all piping and hose after use without discharging the remaining chemical.

There shall be provisions for the de-pressurization of the chemical container without the loss of the remaining chemical.

All system components shall remain within vehicle GVWR and mounting shall not adversely affect vehicle center of gravity.

Designs, where nitrogen bottles are being stored in front of the first axle shall be not accepted due to the high risk of explosion in case of an accident.

The system shall have manually activated valves for the hose reel hand line nozzle, by pass and blow down valves located at the agent tank.

AGENT DELIVERY PIPING AND VALVES

The piping, couplings, and valves shall be sized to provide the gas flow into the system and the agent flow out of the chemical container needed to meet the requirements for the discharge nozzle.

All piping and fittings shall conform to the appropriate ASME code. The completed system shall be designed and installed so as to withstand the recommended working pressure of the system.

The integrity of the installed discharge piping shall be tested at a pressure equal to 150 percent of the system working pressure.

A connection/valve shall be installed immediately downstream of the agent tank to test integrity of all lines and valves in the discharge system from an independent outside source without pressurizing the agent tank.

Material for all piping, couplings, and valves shall be resistant to agent, weather, and galvanic corrosion. When line flexibility is required, stainless steel braided lines shall be used.

Piping shall be securely mounted and provided with flexible couplings where needed to minimize stress.

All valves shall be quarter-turn type, selected for ease of operation and freedom from leaks, designed for the abrasive effects of dry chemicals.

PROPELLANT, PROPELLANT CONTAINERS AND COMPONENTS

The propellant gas shall be dry nitrogen. Sufficient container capacity shall be provided to ensure enough gas to discharge all of the agent and to permit purging of all pipes and hose lines after use.

All propellant gas cylinders and valves shall comply with US Department of Transportation (DOT) requirements. Cylinders shall bear the DOT marking, including evidence of a current hydrostatic test. Pressure gages shall be provided which will indicate the pressure on the propellant gas system downstream of the pressure regulator and in the propellant cylinders at all times.

Cylinder valves, gages, and piping shall be arranged or protected to preclude accidental mechanical damage during fire fighting operations.

The pressure reduction system shall automatically reduce the normal storage cylinder pressure to (and hold it at) the designed operating pressure of the dry chemical container. The regulator may be of a type without pressure indicating gages.

Pressure regulating devices shall be equipped with a spring-loaded relief valve that will relieve any excess pressure that may develop in the regulator.

All pressure regulating devices shall be sealed or pinned at the designed operating pressures after final adjustment by the system manufacturer.

Regulators must be of a high flow variety which allows a rapid build-up time for system pressure for a full system charge and operation.

Regulators shall allow for continuous discharge of the agent at not less than 7 lbs. per second, while maintaining discharge distance until such time as the agent tank is completely empty.

The nitrogen cylinder shall be mounted within a compartment for minimal exposure to the elements and shall be restraint for safe operation.

DUAL AGENT HOSE REEL

One (1) dual agent hose reel with leak proof ball bearing swing joint, adjustable friction brake and electric rewind and manual back up shall be furnished and mounted on the apparatus.

100' x 1" twinned hand line hose shall be provided and mounted on the reel.

DRY CHEMICAL NOZZLE

One (1) twin agent 1" nozzle shall be provided with the specified hose reel.

DRY CHEMICAL POWDER (PKP)

500lbs. of potassium based dry chemical fire extinguishing agent shall be provided for the dry chemical system.

PRESSURE GAUGES

Class 1, 2 1/2" diameter liquid filled pressure gauges 30-600psi shall be provided. Gauges are to have white faces with black lettering. Line pressure gauges shall be individually identified with engraved labels.

Individual line pressure gauges are to be aligned in a straight horizontal row across the lower portion of the gauge panel, directly in line with, and above the corresponding discharge valve control.

CAB MOUNTED PRESSURE GAUGE

A Class 1 model PSIS digital pressure gauge shall be mounted within the truck cab, within easy view of the driver, to monitor the turret discharge pressure for Pump-And-Roll operations.

DATA PLATE AND PLACARDS

The manufacturer will provide at time of delivery the following placards and signage as specified by the purchaser and required by the specified governing bodies.

A test data plate will be provided at the pump operators position which gives the rated discharges and pressures together with the speed of the engine as tested for the proposed unit. Plate will comply with requirements of NFPA 414.

A permanent data plate will be affixed in the drivers compartment specifying the quantity and type of the following fluids used in the completed vehicle when equipped with the specified component.

1. Engine Oil
2. Engine Coolant
3. Chassis Transmission Fluid
4. Pump Transmission Lubrication Fluid when applicable
5. Pump Primer Fluid when applicable
6. Drive Axle Lubrication Fluid
7. Air Conditioning refrigerant
8. Air Conditioning lubrication oil
9. Power steering fluid
10. Cab tilt mechanism fluid when applicable
11. Transfer case fluid
12. Hydraulic ladder rack fluid when applicable
13. Air compressor system lubricant
14. Generator system lubricant when applicable

Permanent placards will be affixed and visible to all seated occupants instructing the occupants to wear their seat belts.

A permanent placard will be affixed to the rear step area to instruct that riding on the rear step is prohibited.

All warning placards required by NFPA 414 standards and required by the purchasers specifications for the apparatus will be provided and installed.

PUMP PANEL IDENTIFICATION TAGS

All discharges shall be provided with color coded labels. Identification labels shall be provided at the discharge control, the discharge outlet, and at the discharge drain valve control, colored according to NFPA recommended standards.

CAB MOUNTED PUMP OPERATORS CONTROL PANEL

The fire pump shall be located in the rear compartment of the apparatus body. All NFPA required gauges and controls shall be furnished on an individual panel located in the chassis cab.

All of the pump controls shall be clearly identified with permanently engraved plate type labels.

Lighting shall be provided with a pump operator's panel mounted switch.

REAR MOUNT PLUMBING ASSEMBLIES

1" GATED DISCHARGES, CLASS 1

Class 1, 1" ball valve gated discharge line(s) shall be furnished with the valve located adjacent to the booster reel and plumbed using 1" I.D. wire reinforced, high pressure hose. Valve(s) shall be operated

using a Class One chrome plated handle control assembly.

Outlet located;

One (1) discharge line plumbed to the specified booster hose reel.

2 1/2" GATED DISCHARGES, AKRON

Akron model #8825, 2 1/2" ball valve gated discharge lines shall be furnished, operators panel controlled with the valves located within the enclosed pump compartment. Valves shall be operated using Class One chrome plated locking "T" handle control assemblies which are aligned in a straight horizontal row directly below the corresponding line pressure gauge.

Outlets located;

Two (2) discharges located at rear of the body plumbed with 2 1/2" I.D. schedule 40 pipe, with chrome plated discharge extension adapters with 2 1/2" NST male, 30 degree chrome plated elbows, with 2 1/2" NST chrome plated caps with chains.

2" GATED DISCHARGES, AKRON ELECTRIC (CAB CONTROLLED)

Akron model #8820, 2" ball valve gated discharge lines shall be furnished and controlled from within the cab with the valves located within the enclosed pump compartment and plumbed using 2" I.D. wire reinforced, high pressure hose. Valves shall be operated with Akron electric actuators with open/close switches, position indicator lights, with solid state controls. Valves shall be provided with emergency manual overrides. Control assemblies shall be aligned in a straight horizontal row directly below the corresponding line pressure gauge.

Outlet(s) located;

One (1) discharge located at the front bumper for the bumper turret, plumbed using 2" I.D. wire reinforced, high pressure hose.

BALL VALVE TANK TO PUMP

A 4" electric over air operated butterfly style suction valve with controls on the pump operators panel and in the cab shall be furnished from the tank to the pump, complete with a flexible connection and enclosed in the pump compartment.

A check valve shall be provided and installed in the line between the tank and the pump to prevent the possibility of backfilling the booster tank thru the tank to pump suction line.

Tank suction shall be located in a sump assembly located below the bottom of the tank, properly baffled to prevent surging of water. A 3" cleanout plug shall be provided in the bottom of the tank sump.

TANK FILL/COOLING LINE

One (1) 1 1/2" electrically operated tank refill and pump re-circulating line.

PUMP PANEL TANK LEVEL GAUGE

A Class One Intelli -Tank LED water level gauge shall be provided on the pump operators panel.

CAB TANK LEVEL GAUGE

A Class One Intelli -Tank LED water level gauge shall be provided on the dash of the cab.

PUMP PANEL FOAM TANK LEVEL GAUGE

A Class One Intelli -Tank LED foam level gauge shall be provided on the pump operators panel.

CAB FOAM TANK LEVEL GAUGE

A Class One Intelli -Tank LED foam level gauge shall be provided on the dash of the cab.

REEL AIR BLOW OUT

An electric valve shall be provided, plumbed to the chassis air system which shall charge the booster hose and plumbing with air to eliminate water and prevent freezing.

Controls shall be located in the cab and at the pump panel.

UPF BOOSTER TANK

BOOSTER TANK

A 750 gallon capacity polypropylene booster tank shall be provided.

The booster tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity.

The transverse swash partitions shall be manufactured of polypropylene and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of polypropylene and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provided maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of polypropylene and with a minimum dimension of 8" x 8" outer perimeter. The tower shall be located in the left front corner of the tank. The tower shall have a polypropylene screen and a polypropylene hinged cover. Inside the fill tower, shall be fastened a combination vent overflow pipe. The vent overflow shall be polypropylene pipe that is designed to run through the tank and shall be piped behind the rear wheels.

A forward mounted sump shall be provided in the tank. The sump shall be constructed of polypropylene and be located in the left front quarter of the tank. A polypropylene pipe shall be installed that will sweep from the front of the tank to the sump location. The sump shall have a 3" N.P.T. threaded coupling on the bottom for a plug. This shall be used as a combination clean out and tank drain. An anti-swirl plate shall be located above the sump.

There shall be two standard tank outlets; one for tank-to-pump suction lines, and one for a tank fill line which shall be a 1 1/2" N.P.T. coupling. All tank couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

The tank shall carry a lifetime warranty from its manufacturer.

APPARATUS BODY MATERIALS

STRUCTURAL DESIGN

To prevent possible interaction of dissimilar metals and to reduce the weight of the completed apparatus, the body and ALL STRUCTURAL SUPPORTS shall be constructed entirely of aluminum sheet and

aluminum extrusions.

Aluminum extrusions or sheet aluminum of smaller thicknesses or lesser grades to those specified herein are not acceptable.

All extrusions utilized in the body super-structure, sub-structure and framing shall be 6061-T6 alloy aluminum of the specified thickness and size.

For strength and rigidity all aluminum sheet material utilized in the apparatus body, hose body and compartment sides shall be a minimum of 5052-H32 alloy aluminum sheet.

All extrusions shall be beveled at each joint and all seams shall be electrically seam welded using #5356 alloy aluminum wire.

FASTENERS

All threaded fasteners used in the apparatus body shall be attached with Ny-Lok type nuts.

All aluminum and stainless steel components shall be attached using stainless steel fasteners. Zinc or cadmium plated fasteners are not acceptable for use with any aluminum or stainless steel components on the vehicle.

Compartment door hinges, handrails, and runningboards shall be attached using minimum 1/4" diameter machine screw fasteners.

3/16" diameter fasteners shall only be used in non-structural areas such as; door locks, trim moldings, gauge mountings, etc.

APPARATUS BODY SUB-FRAME

The surface of the chassis frame rails shall be isolated from the apparatus substructure by an elastomeric isolator.

The main body sub-frame shall be fully welded to the longitudinal chassis extrusions.

The main body sub-frame shall be constructed of not less than four (4) 4.00" by 2.50" tubular, 6061-T6 aluminum, "I" beams with a .375" vertical main body crossmembers. A minimum of four (4) crossmembers shall be provided two ahead of and two behind the rear axle forming the main body support crossmembers.

The main crosstubes shall be routed through and fully welded to the vertical and horizontal extrusions forming the body super-structure.

For added strength and rigidity, no less than six (6) intermediate body crossmembers shall be provided constructed of solid aluminum structural "I" beams 4.00" high by 3.00" wide with a minimum .29" flange thickness. If necessary, additional crossmembers shall be provided, to meet the minimum booster tank mounting requirements, as published by the manufacturer of the booster tank provided.

The intermediate structural "I" beam crossmembers shall be interconnected and welded to the main body tubular crossmembers forming a fully welded support grid for the body super-structure compartments and booster tank. No Exception.

CHASSIS FRAME AND BODY INTERFACE

The surface of the chassis frame rails shall be isolated from the apparatus body sub-structure by an elastomeric isolator.

Two (2) 6061-T6 aluminum longitudinal extrusions shall be provided, one (1) on each chassis frame rail running full length beneath the apparatus body. A minimum .50" extruded wall thickness shall be provided on the top flange of the chassis frame rail. Each extrusion shall be designed to cover the complete top flange and outside radius of the chassis frame rail extending down the outside web of the frame rail a minimum of 1.25" to prevent side to side shifting of the apparatus body.

A minimum of six (6) U-bolts shall be provided to secure the body sub-structure to the chassis frame. The forward two (2) U-bolts shall be shock absorbing spring tension type to allow for flexing without placing stress on the apparatus body or chassis frame rails.

BODY SUPERSTRUCTURE

All vertical and horizontal structural members of the outer apparatus body shall be constructed of no less than 4.00" by 12.00", 6061-T6 aluminum extrusions with a minimum .200" wall thickness fully welded together forming a unitized support system for the body and compartments. In order to provide a complete internal and integrated body super-structure, full height extruded structural members shall be provided at each corner of the apparatus and between each exterior equipment compartment.

Bidder is to provide with their bid proposal illustrations and drawings of the body structure to show compliance with this requirement. No Exception.

EXTERIOR COMPARTMENT CONSTRUCTION

Compartment sides and walls shall be welded to the super-structure. Seams shall be sealed using an engineered grade polyurethane adhesive-sealant.

Rear compartments on apparatus equipped with rear fuel tanks shall be provided with a minimum 13" wide x 38" removable access panel on the rear wall to enable the fuel tank sending unit to be removed for repair or replacement.

Full height access panels fastened with stainless steel fasteners shall be provided to access all wiring routed through vertical super-structure extrusions. There shall be no exposed wiring allowed within the compartment interiors. No Exception.

A minimum of forty-five square inches of removable louvered ventilation shall be provided in each compartment.

Compartment flooring shall be smooth aluminum welded in place to the extruded aluminum framework.

There shall be no floor welds visible from the interior of the equipment compartments. No Exception.

The tops of the side exterior compartments shall be constructed of 3003-H14 alloy aluminum treadplate fastened to the body with stainless steel fasteners. Compartment tops that are welded in place do not meet the serviceability intent of this requirement.

SHELVING TRACKS

The vertical extrusions forming the framework of the side exterior compartmentation shall be designed to incorporate FULLY RECESSED adjustable shelving standards. Shelving tracks shall run full height of **ALL** side exterior equipment compartment.

The intent of this requirement is to allow full use of the available storage areas without the interference of shelving tracks extending into and reducing the interior widths of the compartments which will allow equipment to be stored within the full width of the compartment interiors.

Shelving, when specified, shall have a width of no less than .25" of the overall compartment width.

Adjustable shelving tracks welded or bolted onto interior walls of the compartments do not meet the intent of these specifications.

HOSE BODY CONSTRUCTION

To maintain strength and rigidity, the main hose body shall be completely framed with a minimum of 2.00" X 3.00" 6061-T6 alloy aluminum extrusions with a .281 nominal wall thickness. The hose body extrusions shall be welded to the super-structure framework, becoming an integral portion of a complete unitized support system. Sheet metal or sheet aluminum with double or triple formed breaks, does not meet the technical requirement of the specification in providing a complete hosebody framework and are not acceptable.

Sides shall be constructed of aluminum sheet welded to the framework. There shall be no visible welds on the exterior of the hose bed side sheets.

SIDE BODY COMPARTMENT ROLL-UP DOOR CONSTRUCTION

Exterior side equipment compartments so specified shall be equipped with roll-up shutter doors to be installed as specified herein. The door shall be located above and outside of the interior of the compartments thereby protecting the door in the raised position from possible damage by the shifting of equipment.

The door roll mechanism shall also be protected from possible damage should equipment shift while the vehicle is in transit with the door in the closed position.

When the door is raised, the location of the drum assembly shall not allow water drainage from the doors into any portion of the exterior of the compartment, thereby preventing the accumulation of water, snow, or ice from damaging the equipment located therein.

The roll-up door drum assembly shall be fully enclosed and protected from the elements. Provisions shall be made on each end and each side of the apparatus for moisture to self-drain from the raised doors to below the apparatus body using integral drainage ports.

To provide access for repairs and adjustments without removing equipment from the compartments, the door roll assemblies shall be serviced from above the compartment. There shall be no need to remove any equipment nor to open the door to provide service to the same. Should a door be prohibited from being raised because of damage to or a defect in the roller assembly, service must be capable of being performed without the cutting, damaging or destroying of the door shutters to gain access. Access to the door mechanism shall be provided through the removable door roller assembly access panel that requires only the use of common hand tools to remove.

Pendent plates supporting the door roll assembly shall be bolted in place, adjustable and capable of being removed with common hand tools. Pendent plates and supports that are welded in place do not meet the maintenance and service criteria of these specifications.

In order to provide unlimited access to stored equipment and to help prevent damage to the tracks by removing equipment, the tracks shall not protrude into any portion of the door frame opening. The width of the door frame opening shall be the actual useable width available to store and remove equipment. No Exception.

Door openings shall match the compartment sizes as specified.

ROLL UP DOORS

R.O.M. Robinson brand extruded aluminum shutter style doors with lift bar latch mechanisms and

associated hardware shall be provided and installed as specified.

ROLL UP DOOR FINISH

The roll up doors provided shall be left a satin anodized natural finish.

PULL DOWN STRAPS

Black in color nylon straps shall be provided and installed on the side portion of each roll up door and attached midway alongside the interior compartment which will allow the strap to automatically tuck inside the compartment when closed.

COMPARTMENTS LEFT SIDE

The left side compartment ahead of the rear wheels shall be 44" wide x 63" high and equipped with a large 44" wide by 63" high clear door opening.

The left side compartment above the rear wheels shall be 52" wide x 32" high, with a 52" wide by 32" high clear door opening.

The left side compartment behind the wheels shall be 44" wide x 51" high and have a 44" wide by 51" high clear door opening.

The compartments on the left side shall be provided with roll-up doors.

All left side compartments shall have an interior usable depth of not less than 12" in the upper portion with the specified doors in the closed position.

The lower portion of the forward and rear side compartments of the body are to be notched in and under the water tank to a useable depth of 26" with the specified doors in the closed positions in order to provide the maximum amount of storage area.

COMPARTMENTS RIGHT SIDE

The right side compartment ahead of the rear wheels shall be 44" wide x 63" high and equipped with a large 44" wide by 63" high clear door opening.

The right side compartment above the rear wheels shall be 52" wide x 32" high, with a 52" wide by 32" high clear door opening.

The right side compartment behind the wheels shall be 44" wide x 51" high and have a 44" wide by 51" high clear door opening.

The compartments on the right side shall be provided with roll-up doors.

All right side compartments shall have an interior usable depth of not less than 12" with the specified doors in the closed position.

The lower portion of the forward and rear side compartments of the body are to be notched in and under the water tank to a useable depth of 26" with the specified doors in the closed position in order to provide the maximum amount of storage area.

TOW EYES

Two (2) tow eyes shall be furnished under the rear of the body and attached directly to the chassis frame. Tow eyes are to be constructed of 1/2" plate steel with a 3" I.D. hole, large enough for passing through a tow chain end hook.

HOSEBED FLOORING

Floors of the specified hosebeds are to be provided with removable slat style extruded aluminum hosebed gratings, spaced 1/2" apart for proper hose ventilation. Hosebed gratings are easily lifted out of the main hosebed for access to the top of the specified booster water tank.

BODY WIRING RACEWAYS

Due to the possibility of damage by shifting equipment, exposed wiring shall not be permitted in the equipment compartments. The main body wiring harness shall not be routed beneath the apparatus body where it may be exposed to road debris and the elements of weather.

The body shall be designed to provide easily accessible recessed raceways to fully protect all body wiring. Bolted on access panels shall be provided for all wiring routed through the body. Access panels shall be removable with common hand tools. Hollow tubes with wiring routed through the same that is only accessible by disconnecting wiring and manually pulling the same through the tube does not meet the intent nor the technical requirements of this specification in providing accessible wiring. Open faced channels with wiring held in place by clips or tie downs does not meet the intent nor technical requirement of providing protected wiring.

RECESSED COMPARTMENT LIGHTING

All side exterior equipment compartments shall be provided with one (1) fully recessed rubber shock mounted sealed and weathertight clear compartment light. The light shall be totally enclosed (not exposed to the environment) and side wall recessed mounted within 12.00" of the compartment ceiling. When two (2) compartment lights are specified, the second light shall be mounted approximately one half the distance between the upper light and the compartment floor.

The lights shall be a minimum of 4.00" diameter and use recessed wiring, and are to be equipped with wire plugs for ease of removable or replacement.

WHEEL WELL LINER AND FENDERETTES

For ease of accessibility and maintenance, wheel well panels shall be double break formed polished aluminum treadplate that is fully gasketed and bolted in place with stainless fasteners. Wheel wells shall be of the removable design so as to provide replacement in the event of damage. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. Wheelwell panel shall be isolated from the apparatus body utilizing .25" nylon spacer blocks.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 24.00") radius wheel well liner constructed of exterior grade .25" black polyethylene sheet shall be provided. For ease of removal, the liner shall be held in place via means of a self-tension retention system. Due to possible corrosion and contamination by road debris in the wheel well area, mechanical fasteners shall not be used to secure the wheel well liner.

The rear wheel wells shall be radius cut for a streamlined appearance. A polished type 304 stainless steel radius fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners with nylon isolators to prevent contact of the fastener with the wheelwell housing panel. A black rubber gasket shall be installed between the stainless fenderette and the apparatus body sides. Silicone caulking does not meet the intent nor the technical requirement of a solid gasket material in this area and is not acceptable.

APPARATUS COMPARTMENTATION

There shall be large enclosed compartments on both sides of the body, starting at the front of the hosebody and continuing to the rear of the apparatus. These compartments shall be as large as

possible, using all available space.

The aluminum treadplate compartmentation tops on each side of the body shall be extended out and downward a minimum of .50" over the compartment doors forming a drip rail. Corners shall be TIG welded.

Lower or rear face compartments, if specified shall be provided with polished aluminum drip rails.

All high side compartment tops shall be NFPA approved non-slip treadplate.

SIDE AND REAR OVERLAYS

.125" polished aluminum treadplate overlays and panels shall be provided and installed in the following areas:

The front face of each side compartment and center rear panel of the apparatus body.

Overlays shall be bolted in place and sealed to prevent any moisture entry between the overlay and the body structure.

EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the right and left body sides. There shall be a bolt on aluminum corner casting on each rear corner to blend the rear tail board assembly with the side rub rails.

The side rub rails shall be a heavy extruded aluminum "C" channel.

REAR BODY (ANGLE OF DEPARTURE)

The lower portion of the rear body shall be raised approximately 4 1/2" to provide a 30 degree angle of departure for off road use.

Aluminum treadplate shall be used to cover the underside of the departure angle unless a pintle hook or receiver hitch is called out which will require the area to be left open.

REAR RUBRAIL

A single piece rear rubrail shall be furnished full width of the apparatus body. Rubrail is to be bolted in place and removable for ease of repair or replacement. No Exception.

COMPARTMENT FLOOR COVERING

All enclosed compartment floors of the apparatus body shall be covered with black colored rigid Turtle Tiles for improved ventilation, and added scuff protection.

ADJUSTABLE SHELVES

Four (4) compartment shelf(s) shall be provided and constructed of .190" smooth Aluminum, and are to have formed upward breaks on front and rear for added strength. Shelf(s) shall be fully adjustable within the compartments. Lighter gauge shelf materials are not acceptable.

Shelve(s) shall extend full width of the compartments, within .25" of the overall width, and adjust up and down in the integral shelf tracks.

All compartment shelving/trays are to be fully covered with black colored rigid Turtle Tiles for added scuff protection.

ACCESS RAIL

NFPA approved, extruded aluminum ribbed finish "non-slip" access rail with chrome plated mounting brackets shall be provided. Smooth access rails, or rails having an adhesive or rubber covering that can loosen over time are not acceptable.

Rubber gaskets shall be installed below each handrail bracket to prevent cracking or fracturing of the painted surface.

One (1) vertical access rail shall be provided and mounted on the rear of the apparatus body.

REAR ACCESS LADDER

The top of the apparatus shall be accessible from the ground by a ladder. The ladder shall be an all welded construction of aluminum tubing and extrusions with the steps having a non-slip surface. The bottom 12" of the ladder shall fold up in a secured position when not in use to maintain a high angle of departure.

The ladder will be located on the rear of the apparatus.

SCBA BRACKETS

Two (2) NFPA compliant SCBA mounting brackets shall be provided and mounted in the enclosed storage compartments as per instructions of Fire Department. Brackets shall be provided with retention straps and plastic coated clips for bottle scuff protection.

PAINT PROCESS

All apparatus body seams shall be caulked both inside and along the exterior edges with an automotive sealant to prevent moisture from entering between any body panels.

Tacked free of any dust particles, the body and all parts shall be individually sprayed using the following minimum procedure and materials:

- One (1) coat of self etching primer
- Two (2) coats of urethane primer
- Two (2) color coats of the specified color
- Three (3) coats of clear urethane

When a fire pump is provided, the fire pump, pump compartment structural components, and all rigid discharge and suction plumbing is to be painted Silver in color unless otherwise specified by the customer. No exceptions.

While constructing the truck body, all aluminum parts shall be properly fitted on the body and then removed. The back side of all aluminum parts shall be sanded smooth of any burrs and sharp edges.

All aluminum parts shall be bolted to the body using stainless steel fasteners. Zinc or Cadmium plated fasteners are not acceptable.

During reassembly of the apparatus, care shall be exercised in fitting and fastening the parts back in their respective position on the vehicle.

INTERIOR COMPARTMENT FINISH

The interior body compartments shall be left unpainted and have natural finish.

WHEEL PAINTING

The exterior faces of the front wheels and outer rear wheels only, shall be finish painted to match the apparatus body. Wheels shall be properly prepared and finished with primer coats and top coats as specified.

TOUCH-UP PAINT

Touch-up paint shall be furnished with the completed truck at final delivery.

LETTERING

16" high lettering shall be done in Scotchlite reflective lettering. Lettering to be placed on each cab door as directed by fire department.

LETTERING/NUMBERING (CAB ROOF)

A maximum of two (2) 24" high Scotchlite reflective letters or numbers shall be provided and installed on the chassis cab roof as directed by fire department.

STRIPING

A 8" wide white 3M brand Scotchlite #680-10 reflective stripe shall be affixed to the perimeter of the vehicle. Striping shall be placed up to 60" above ground level and shall conform to NFPA reflectivity requirements. At least 50% of the perimeter length of each side and width of the rear, and at least 25% of the perimeter width of the front of the vehicle shall have reflective stripe.

ELECTRICAL

The apparatus shall have the ability to function in an electromagnetic environment most common to fire ground operations. The electrical system shall be designed for full compatibility with low level control frequencies and any high powered two-way radio systems.

All wiring shall be protected by circuit breakers or fuses. Circuit breakers shall be the automatic reset type unless operational requirements and/or safety concerns dictate manual reset type. Automotive type fuses shall be used when required to protect delicate electronic equipment. All circuit protection devices shall conform to the Society of Automotive Engineers (SAE) standards. All circuit protection devices shall be sized according to 125% of the anticipated load to prevent any wire and/or component damage when subjected to extreme current overload.

All apparatus builder supplied wiring (excluding battery cables) shall be GXL high temperature (250 degrees minimum) type, color and number coded and imprinted with circuit function every 2 inches. Wiring connectors shall be the crimp type with plastic sleeve or shrink tube insulation covering the crimped area to prevent accidental grounding. In-line connectors shall also utilize shrink tubing for a weatherproof connection.

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

All solenoids, relays, terminal blocks and circuit breakers shall be protected against corrosion, excessive heat, vibration, physical damage and water spray.

Any electrical component or device installed in an exposed area on the outside of the cab or body shall be mounted in such a manner, or protected by a gasket, caulking or other means, so that moisture will not

accumulate in it.

All exposed electrical wiring shall be run in an automotive type split plastic conduit or woven fabric type loom and shall have rubber grommets installed wherever the harness passes through any sheet metal panels.

An operational test shall be conducted to ensure that all installed electrical equipment is properly connected and is in working order. Additionally all warning lights shall be run continuously for not less than three (3) hours.

Wiring data shall be provided with the completed apparatus.

Exposed wiring will be not be allowed in compartment interiors. No Exception.

The following electrical equipment and lights shall be provided and installed:

REAR STEP LIGHTS

Two (2) Weldon model 9186 chrome plated lights shall be provided and installed on the rear face of the body to illuminate the rear step area. Lights shall be wired to the panel light switch at the pump operators panel.

CLEARANCE LIGHTS

Truck-Lite halogen vehicle clearance marker lights with reflectors mounted in accordance with Highway Safety Standards shall be furnished and installed. Clearance and marker lights shall be recess mounted within the center tailboard/step.

MID BODY TURN SIGNALS

Halogen mid mounted body turn signals shall be installed recess mounted in the vehicle rub rails.

12 VOLT ELECTRICAL CERTIFICATION

The low voltage electrical system shall be tested and certified per NFPA 1901 requirements.

A certificate of compliance shall be provided with the completed vehicle upon delivery.

Minimum electrical load consists of the total amperage required to simultaneously operate the following in a stationary mode at the incident scene.

- The propulsion engine and transmission.
- All Clearance and marker lights.
- The communication radio. (Default of 5.0 amps used for testing).
- Illumination of all walking surfaces, the ground at all egress points, controls and instrument panels and 50% of the total compartment lighting load.
- Minimum warning lights required for "Blocking Right of Way" mode.
- The current to simultaneously operate any fire pump, aerial device & hydraulic pumps.
- Anything defined by the purchaser to be critical to the mission of the apparatus.

The first test for the electrical system is the **Reserve Capacity Test**. All the above listed components operate with the engine shut off. After 10 minutes all electrical loads are shut off and the battery system must have adequate reserve power to start the engine.

The second test is the **Alternator Performance Test at Idle**. All the above listed components operate with the engine at an idle. There can be no current draw from the batteries of the apparatus.

The third test is the **Alternator Performance Test at Full Load**. All electrical components shall be activated with the engine operating at governed RPM for two hours. During the test the system voltage can not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not listed in the minimum electrical load may be load managed in order to pass the test.

All of the above tests must be conducted with the engine compartment at approximately 200 degrees.

BACKUP ALARM

An automatic, electronic reverse alarm shall be provided and installed. The alarm shall activate whenever reverse gear is selected in the transmission.

TAIL & BACKUP LIGHTS

Two (2) Weldon #2010 rectangular RED stop/tail lights shall be provided and mounted at the rear of the body, one on each side.

Two (2) Weldon #2010, rectangular amber directional signal lights with black arrows shall be provided and mounted at the rear of the body, one on each side.

Two (2) Weldon #2010, rectangular clear backup lights shall be provided and mounted, one on each side at the rear of the body.

OPEN COMPARTMENT WARNING LIGHT

A RED flashing, warning light shall be provided and installed in the drivers compartment to indicate an open passenger or apparatus compartment door. Light shall be properly marked and identified.

ELECTRONIC SIREN

A Code 3 Model 3692 V-CON, 200 watt electronic siren with HyperYelp and hardwired microphone shall be provided and mounted on top of the cab dash unless stated otherwise, elsewhere in these specifications.

SPEAKER

One (1) Cast Products Model SA2401, 100 watt speaker shall be provided and recess mounted in the front bumper of the truck and connected to the electronic siren control unit.

RED WARNING LIGHT

One (1) Code 3 model 550F rotating light mounted on the roof of the cab to meet AC No. 150/5220-10D lighting requirement. The light shall be activated through the master emergency light switch located on the electrical console. The light shall have the following.

- (1) 50 watt fast rotator
- Red lens

AMBER RUNNING LIGHT

One (1) Code 3 model 550F rotating light mounted on the roof of the cab to meet AC No. 150/5220-10D lighting requirement. The light shall be activated with the chassis ignition and shall be wired to turn off when the red warning light is activated. The light shall have the following.

- (1) 50 watt fast rotator
- Amber lens

ZONE A FRONT LIGHTS

There shall be two (2) Code 3 model 41-35 red halogen lights furnished on the front grill to meet the NFPA Zone A lower level lighting requirement. The lights shall be connected to a relay and shall be activated through a switch located on the electrical console.

LOWER ZONE C REAR LIGHTS

There shall be two (2) Code 3 model 41-35BZ red halogen flashing lights furnished on the rear of the apparatus body to meet the NFPA Zone C lower level lighting requirement. The halogen lights shall be activated through the master emergency light switch located on the electrical console.

ELECTRICAL CONSOLE

An electrical console shall be constructed of .125" smooth aluminum material and mounted in the cab of the truck chassis. Console shall be designed and installed accessible from the driver and passenger seats. The top face of the console shall be designed as the switch panel for all emergency light switches.

All emergency light switches shall be lighted, push button style. Switches shall be internally lit when the switch circuit is in the on position

The water and foam level gauges shall be incorporated into the console.

EMERGENCY LIGHT SWITCH

The entire warning light package shall be actuated with a single lighted master warning switch in the cab switch panel. The wiring for the warning light package shall engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system shall be provided to switch the warning lights to "Blocking the Right of Way" mode when the vehicle park brake is engaged.

ENGINE COMPARTMENT WORK LIGHT

One (1) Truck-Lite model #80351 engine compartment work light(s) shall be provided complete with a push button activation switch mounted on each light head.

PUMP COMPARTMENT WORK LIGHTS

Four (4) Weldon brand pump compartment work light(s) shall be provided and installed within the pump compartment area activated by the rear door switch.

UNDERBODY LIGHTS

Truck-Lite model 40003, underbody lights meeting NFPA requirements shall be provided and mounted below runningboard level, each side of the body controlled by the park brake switch. Lights are to be a minimum 4" diameter sealed and weathertight. Fixtures are to be mounted in bolt on brackets using shock absorbing rubber grommet mounts for ease of repair or replacement.

UNDERCAB LIGHTING

Undercab lights meeting NFPA requirements shall be provided and mounted below each cab door controlled by the park brake switch. Lights are to be a minimum 4" diameter sealed and weathertight. Fixtures are to be mounted in bolt on brackets using shock absorbing rubber grommet mounts for ease of repair or replacement.

LICENSE PLATE BRACKET

A license plate mounting bracket shall be provided complete with a chrome plated shielded indirect type light. Bracket shall be mounted at the rear of the apparatus body.

FLIR

A Flir systems inc. model Pathfinder Flir system shall be provided with the camera mounted on the bumper turret to provide pan and tilt capability.

A 10" LCD color monitor shall be mounted in the cab.

BATTERY DISCONNECT SWITCH

A green lighted master switch shall be provided and mounted in a convenient location to the driver, connected to a heavy duty solenoid to disconnect the batteries from all chassis and body accessories.

IGNITION SWITCH

A non-removable ignition key shall be provided.

BATTERY CONDITIONER

A 110 volt Kussmaul Auto-Charge 1000, single system, 15 amp, automatic battery charger and power supply shall be provided and installed within the chassis cab and wired to the battery system. Battery charger shall be 15 amp output type designed to automatically charge the battery system when shoreline power is connected. The charger shall be equipped with a bar graph type charge level indicator to indicate the charge rate. The charger shall have an electronic sensing circuit to sense the true battery voltage while eliminating the need for external wires. Charging is completely automatic, when the battery is fully charged, all charging stops. There is no over charging and no water boil off.

The charger shall have a built in 3 amp battery saver for rechargeable hand lights.

110 VOLT SHORELINE

A 110 volt 20 amp manual shoreline connection shall be provided in the driver's step area.

ADDITIONAL EQUIPMENT

The following equipment shall be provided on the completed apparatus by the apparatus manufacturer.

OPERATION/SERVICE MANUAL

The following applicable documentation shall be supplied upon delivery:

Two (2) electronic copies of Operation/Service manual of the apparatus operations and service manuals supplied by components manufacturers.

Pump certification when applicable including manufactures record of apparatus construction details.

Certificate of compliance to Electrical Warning System Low Voltage test.

Water tank capacity certificate when applicable.

Line Voltage Electrical System test certificate.

(NFPA 19-14.4.1 - 19.14.4.2)

Certificate of approval for stationary pumping when applicable.

All manuals shall be formatted on CD.

WHEEL CHOCKS

One (1) pair of Zico Model SAC-44 Quic-Chok NFPA compliant wheel chocks shall be provided and mounted under the apparatus runningboards in model SQCH-44-H horizontal mounting brackets.

FAA TESTING

The apparatus shall be tested at the manufacturer's plant to meet the requirements of FAA-5220-10D circular for Rapid Intervention Vehicles class 1, 2 or 3, and NFPA 414 2007 edition table 4.1.1d for vehicle water tank capacity 120 to 528 gallons. A copy of the test report shall accompany the apparatus upon delivery.