

Fire Department Name



DATE:

Prepared For:

DEPARTMENT NAME: Northeast Demo Safe Scene (General)

ADDRESS:

CITY/STATE/ZIP:

FIRE CHIEF:

DEPARTMENT CONTACT:

PHONE:

FAX:

CELL PHONE:

EMAIL ADDRESS:

CHASSIS MAKE:

MODEL:

ENGINE:

TRANSMISSION:

WHEELBASE:

MAXIMUM OVERALL HEIGHT:

MAXIMUM OVERALL LENGTH:

Financial Stability Specifications

FINANCIAL STABILITY SPECIFICATIONS

Ensuring the financial stability of the proposed body builder is a paramount consideration to this department. Financial strength directly relates to the body builders ability to successfully produce an apparatus without jeopardizing fire department funds. In addition, financial strength is vital to this department to insure a body builder will be able to provide warranty service along with replacement parts and service for the life of the apparatus. Failure to be able to provide these lifelong services may cause future increases in maintenance expenses and create undue burden on the departments budget and tax base. This is a situation that this department is unwilling to risk. The body builder, therefore, shall meet certain minimum financial ratios in order to qualify for a bid award. The financial ratios presented shall be that of the consolidated entity; not the

consolidated entity's parent company; for the body builder.

The financial ratios required to be met shall be derived from the most recent audited financial statements of the body builder proposed. **NO EXCEPTIONS.**

ANY EXCEPTION taken to this requirement shall immediately render the bid non-responsive and the bidder dismissed from further consideration. Under no circumstance shall a bid be considered where the bidder submits a letter of explanation taking exception to this requirement in lieu of providing the required documentation, nor shall consideration be given to bidders that refuse to submit the required information on the basis that the body builder proposed is a private company. **NO EXCEPTIONS.**

The three (3) critical financial indicators to be met are as follows:

Debt-to-Equity Ratio: The debt-to-equity ratio of the entity must not exceed a 2.0 rating. A debt-to-equity ratio is defined as that of total liabilities divided by total owners equity. In laymen's terms, a low debt-to-equity ratio means the company itself owns a greater share of its assets, as opposed to banks, creditors and other financial institutions. Conversely, companies with high debt-to-equity ratios are those that are generally financing their growth by carrying additional debt. The cost of this debt-financing may outweigh the return that the company generates on the debt through business activities and become too much for the company to manage. This can lead to bankruptcy, which is of grave concern to this purchaser.

Debt Coverage Ratio: The debt coverage ratio of the entity must exceed a 100.0 rating. A debt coverage ratio is defined as annual net income divided by the current portion of long-term debt. A high debt coverage ratio means the company can easily meet its payment obligations with its banks and other creditors. A low debt coverage ratio clearly infers the company may struggle to meet these obligations, which could ultimately delay or cancel production of apparatus.

Equity Ratio: The equity ratio of the body builder must exceed a .30 rating. An equity ratio is defined as total owners equity divided by total assets. The equity ratio is another good indicator of the level of leverage (or financing) used by a company. The equity ratio measures the proportion of the total assets that are financed by owners and not creditors. A high equity ratio provides the company with flexibility in financing growth and other needs.

All financial indicators required by this section must be verified by Dun and Bradstreet, the nationally-recognized, independent financial analysis company. Bids furnished without the required financial information shall render the bid non-responsive and the bidder dismissed from further consideration. **NO EXCEPTIONS.**

Warranty, Apparatus, Bumper to Bumper, 1 Year, BR

BUMPER TO BUMPER WARRANTY

We warrant each new motorized fire apparatus manufactured by ROSENBAUER AMERICA, LLC for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein.

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 ROSENBAUER AMERICA, LLC, 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.

The warranty on the chassis and chassis supplied components, 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 will not apply to any fire apparatus that 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 that are usually considered normal maintenance and upkeep services: including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or 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 in connection with the sales of our apparatus unless made in writing by ROSENBAUER AMERICA, LLC.

Pump Warranty, Rosenbauer, BR

PUMP WARRANTY

Rosenbauer America, LLC (Rosenbauer) warrants, to the original buyer only, that products and parts manufactured by Rosenbauer America, LLC 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 one and one half years from the date of shipment by Rosenbauer America, LLC, whichever period will be the first to expire; provided the buyer notifies Rosenbauer 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 Rosenbauer, defective products must be promptly returned by the buyer to the Rosenbauer plant or at such other place as may be specified by Rosenbauer with transportation and other charges prepaid. A Return Goods Authorization (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, LLC 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.

Warranty, Bdy, Alum, 20 Years, Transferable, BR

ALUMINUM BODY WARRANTY - TWENTY YEAR

Rosenbauer America, LLC warrants to the original purchaser that the all aluminum body, fabricated by Rosenbauer America, LLC, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for a period of TWENTY (20) years. Warranty coverage is transferable to second owner, if applicable, with proper notification made to Rosenbauer America, LLC.

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

ROSENBAUER AMERICA, LLC MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE ALUMINUM BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND HEREBY DISCLAIMED.

Rosenbauer America, LLC 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 Rosenbauer America, LLC elects to repair this body, the extent of such repair shall be determined solely by Rosenbauer America, LLC, and shall be performed solely at the Rosenbauer America, LLC factory, or at an approved facility. The expense of any transportation to or from such repair facility shall be borne by the purchaser and is not an item covered under this warranty.

Rosenbauer America, LLC will not be liable for 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.

Rosenbauer America, LLC will be given a reasonable opportunity to investigate all claims. The purchaser must commence any action arising out of, based upon or relating to agreement or the breach hereof, within twelve months from the date the cause of the action occurred.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufactureres.

Warranty, Subframe, 20 Year Alum, Transferable, BR

ALUMINUM SUBFRAME WARRANTY

Subject to the provisions, limitations and conditions set forth in this warranty, Rosenbauer America, LLC (hereby referred to as "seller"), hereby warrants to each original purchaser only that each new aluminum body subframe (exclusive of paint finish and hardware) is structurally sound and free of all structural defects of both

material and workmanship and further warrants that it will maintain such structural integrity for a period of twenty (20) years of ownership by the original purchaser. Warranty coverage is transferable to second owner, if applicable, with proper notification made to Rosenbauer America, LLC.

This warranty is conditioned upon normal use and reasonable maintenance of such subframe; prompt written notice of all defects to seller or one of the seller's then authorized dealers in the area; no repair or additions there to except by seller or authorized by it; said defect not resulting from misuse, negligence, accident, remount, overloading beyond applicable weight rating by customer or third parties. If any such conditions are not complied with, this warranty shall become void and unenforceable.

Should repairs become necessary under the terms of the warranty, the extent of that repair shall be determined solely by the seller and shall be performed solely at Rosenbauer America, LLC or a repair facility designated by the seller. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Seller reserves the unrestricted right at any time from time to time to make changes in the design of and/or improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

EXCLUSIONS AND LIMITATIONS: THIS MANUFACTURER'S WARRANTY IS PROVIDED IN PLACE OF ANY AND ALL OTHER REPRESENTATIONS OR IMPLIED WARRANTIES. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTY ON BEHALF OF ROSENBAUER AMERICA, LLC OR ANY OF ITS DISTRIBUTORS OTHER THAN SET FORTH IN THIS MANUFACTURER'S WARRANTY. YOUR RIGHT TO SERVICE AND REPLACEMENT OF PARTS ON THE TERMS EXPRESSLY SET FORTH HERIN ARE YOUR EXCLUSIVE REMEDIES AND NEITHER THE MANUFACTURER NOR ANY OF ITS DISTRIBUTORS SHALL BE LIABLE FOR DAMAGES, WHETHER ORDINARY, INCIDENTAL OR CONSEQUENTIAL.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

Warranty, Paint, PPG, 7 Years, General, BR

PAINT WARRANTY SEVEN YEAR

The PPG 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 Rosenbauer America, LLC:

1. Peeling or delaminating of the topcoat and/or other layers of paint.
2. Cracking or checking.
3. Loss of gloss caused by cracking, checking, or hazing.
4. Any paint failure caused by defective PPG Fleet Finishes, which are covered by this guarantee.

All guarantee exclusions, limitations, and methods of claims are covered in the full certificate provided to the

original purchaser.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

Mnls, Bdy Complete, 1 Set Printed With CD, BR

COMPLETE PRINTED MANUAL

ROSENBAUER shall provide with the vehicle upon delivery, one (1) complete delivery manual. This manual shall be in a notebook type binder, with reference tabs for each section of the vehicle. A companion compact disk (CD) with all of the printed material in an electronic format (Adobe Acrobat PDF) shall be provided.

Within each section shall be:

1. Individual component manufacturer instruction and parts manuals
2. Warranty forms for the body
3. Warranty forms for all major components
4. Warranty instructions and format to be used in compliance with warranty obligations
5. Wiring diagrams
6. Installation instruction and drawings for major parts
7. Visual graphics and electronic photos for the installation of major parts
8. Necessary normal routine service forms, publications and components of the body portion of the apparatus
9. Technical publications for training and instruction on major body components
10. Warning and safety related notices for personnel protection
11. Cab and chassis manuals on parts, service and maintenance shall be provided

Plmbg Warranty, Stnls Stl, 10 Years, BR

STAINLESS STEEL PLUMBING WARRANTY

Subject to the provisions, limitations and conditions set forth in this warranty, Rosenbauer America, LLC (hereby referred to as "seller"), hereby warrants to each original purchaser only that stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of the delivery and shall terminate upon the transfer of possession or ownership by original purchaser.

This warranty is conditioned upon normal use and reasonable maintenance of such plumbing; prompt written notice of all defects to seller or one of the seller's then authorized dealers in the area; no repair or additions there to except by seller or authorized by it; said defect not resulting from misuse, negligence, accident, remount, overloading beyond applicable weight rating by customer or third parties. If any such conditions are not complied with, this warranty shall become void and unenforceable.

Should repairs become necessary under the terms or the warranty, the extent of that repair shall be determined solely by the seller and shall be performed solely at Rosenbauer America, LLC or a repair facility designated by the seller. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Seller reserves the unrestricted right at any time from time to time to make changes in the design of and/or improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

EXCLUSIONS AND LIMITATIONS: THIS MANUFACTURER'S WARRANTY IS PROVIDED IN PLACE OF ANY AND ALL OTHER REPRESENTATIONS OR IMPLIED WARRANTIES. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTY ON BEHALF OF ROSENBAUER AMERICA, LLC OR ANY OF ITS DISTRIBUTORS OTHER THAN SET FORTH IN THIS MANUFACTURER'S WARRANTY. YOUR RIGHT TO SERVICE AND REPLACEMENT OF PARTS ON THE TERMS EXPRESSLY SET FORTH HERIN ARE YOUR EXCLUSIVE REMEDIES AND NEITHER THE MANUFACTURER NOR ANY OF ITS DISTRIBUTORS SHALL BE LIABLE FOR DAMAGES, WHETHER ORDINARY, INCIDENTAL OR CONSEQUENTIAL.

Chassis, Spartan Cstm

SPARTAN CUSTOM CHASSIS

A Spartan custom fire truck chassis shall be furnished with the following apparatus body and equipment. See attached specifications for exact chassis configuration.

== General Pmpr/Tnkr Chassis Modifications - 328.000 03/31/

Vehicle Dimensions, Sngl Axle

OVERALL DIMENSIONS

The vehicle shall have the following dimensions:

1. Chassis wheelbase:
2. Cab to axle dimension of chassis:
3. Overall length:
4. Overall width:
5. Overall height

Label, Data, Fluid Levels

FLUID DATA PLAQUE

One (1) fluid data plaque containing required information shall be provided based on the applicable components for this apparatus, compliant with NFPA Standards:

1. Engine oil
2. Engine coolant
3. Chassis transmission fluid
4. Drive axle lubricant
5. Power steering fluid
6. Pump transmission lubrication fluid
7. Paint manufacturer and color numbers
8. Other NFPA applicable fluid levels or data as required

Location shall be in the driver's compartment or on driver's door.

Label, Data, Height x Width x Length, Weight

APPARATUS DIMENSION DATA

One (1) highly visible label indicating the overall height, length, width and weight of the vehicle shall be installed in the cab dash area.

Label, Data, "No Ride" Rr Step

NO RIDE LABEL

One (1) "NO RIDERS" label shall be applied on the vehicle at the rear step area or other applicable areas. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion is prohibited.

Label, Indicating Number of Seats

CAB SEATING POSITION LIMITS

One (1) label shall be installed in the cab to indicate seating positions for firefighters. A weight allowance of 250 pounds for each shall be factored into the gross vehicle weight rating of the chassis.

Tow Plates (2), Rr Frame Rail, Under Step

REAR TOWING PROVISIONS

There shall be two tow eyes furnished under the rear of the body and attached directly to each chassis frame rail.

There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

Bumper Gravelshield, With Chs

FRONT BUMPER GRAVELSHIELD

The front bumper gravelshield shall be supplied with the chassis.

Bumper Cmpt Pkg., By Bdy Bldr

BUMPER COMPARTMENTS

The bumper compartments shall be constructed by the body builder.

Bumper Cmpt, Center, Reel Cmpt

FRONT BUMPER COMPARTMENT

One (1) recessed reel compartment constructed from smooth aluminum shall be installed in the center of the front bumper extension. Water drain holes shall be drilled in the bottom.

Bumper Cmpt Door, Alum T/P, Raised 3/4 Opening

BUMPER COMPARTMENT DOOR

One (1) aluminum tread plate door for the front bumper compartment shall be supplied. The door shall have a minimum 1" lips on all sides surrounding 3/4 of the compartment opening, a stainless steel hinge at the rear and a latch to secure the compartment.

Bumper, w/Chassis

FRONT BUMPER

The front bumper shall be supplied with the chassis.

Whl Cvr, Hub/Lug, Install Chs Supl'd, Sngl Axle

CHASSIS SUPPLIED HUB AND LUG NUT COVERS

The chassis supplied wheel trim shall be installed on the front and single rear axles.

Exhaust, Extension Under RH, Bdy

EXHAUST SYSTEM

The chassis exhaust shall be modified and redirected to the right side of the apparatus and will exit ahead of the rear wheel.

Mud Flaps, Front Whls, Blk, w/ Bdy

FRONT MUD FLAPS

One (1) pair of black mud flaps shall be installed behind the front wheels.

Mud Flaps, Rr Whls, Blk, w/ Bdy

REAR MUD FLAPS

One (1) pair of black mud flaps shall be installed behind the rear wheels.

Painting, Tow Plates, Blk

TOW PLATE PAINTING

The tow plates shall be painted black.

== General Midship Pmpr/Tnkr Pump&Plumbing - 328.000 03/31/

Pump Warranty, Rosenbauer, BR

PUMP WARRANTY

Rosenbauer America, LLC (Rosenbauer) warrants, to the original buyer only, that products and parts manufactured by Rosenbauer America, LLC 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 one and one half years from the date of shipment by Rosenbauer America, LLC, whichever period will be the first to expire; provided the buyer notifies Rosenbauer 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 Rosenbauer, defective products must be promptly returned by the buyer to the Rosenbauer plant or at such other place as may be specified by Rosenbauer with transportation and other charges prepaid. A Return Goods Authorization (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, LLC 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

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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.

Pump, Rosenbauer, NH55-1250 GPM, NPHP, Mid-ship PTO

ROSENBAUER NH55 FIRE PUMP

A Rosenbauer Model NH55 fire pump shall be mounted and installed. The midship combination normal and high pressure pump system shall have a rated capacity of 1250 GPM and shall meet all applicable sections of NFPA standards. The pump 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

Pump Body

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

Impeller and Shaft

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.

Pump Drive System

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 shaft furnished from the PTO to the midship pump transmission.

Primer, Rosenbauer, Automatic

PRIMER SYSTEM

The fire pump primer system shall be a positive displacement double piston type that is driven by a belt from the input shaft of the fire pump. The pump shall be lubricated from an oil reservoir but shall not oil or discharge oil in the exhaust. Primers that use 12 volt electricity to drive the primer shall not be acceptable due to voltage loss on the electrical system.

The primer system shall be a "hands off" automatic style primer that, when engaged for drafting operations shall be able to be left unattended for the duration of the drafting operation. Once pump pressure of approximately 5 PSI is achieved, the primer shall disengage. When the pump pressure drops below 5 PSI the primer shall re-engage itself to re-prime the fire pump.

This feature adds to the safety of fire fighters by automatically keeping the pump primed and allows the pump operator to assist in other duties on the fire scene. Primers that do have this automatic feature will not be acceptable, no exceptions.

Pump Shift, Rosenbauer, PTO, Pump and Roll

PTO PUMP SHIFT SPECIFICATIONS -- PUMP AND ROLL

An electric powered PTO pump shift shall be installed in the cab driver's area where not subject to accidental engagement. The pump shift system shall permit "pump and roll" operations, as well as stationary pumping operations.

The following indicator lights shall be included with pump shift.

1. A green indicator light, labeled "PUMP ENGAGED" shall indicate pump shift has successfully been completed.
2. A green indicator light, labeled "OK TO PUMP" shall indicate the chassis transmission is in proper gear and parking brake is engaged.
3. Pump shift and interlocks shall comply with applicable sections of the NFPA standards.
4. The pump shift shall have an instruction label and nameplate to indicate proper pump shift instructions.

Supply Valve, High Pressure, Elec

HIGH PRESSURE VALVE

A 1 1/2" electrically operated valve shall be provided to feed the high pressure manifold. The specified valve shall be an Akron 8800 Series one and one half-inch (1-1/2") valve with a stainless ball. The valve shall be equipped with a KZCO KZ Valve Model EH-2 12 volt electric actuator. The valve control shall be push button or rocker type switch with indicator light provided. When the valve is open, the indicator light shall illuminate. When the valve is closed the indicator light shall be off. The valve shall be controlled from the cab and rear of truck and shall be properly labeled.

High Pressure Plumbed to Bumper Turret

PLUMBING - HIGH PRESSURE SIDE

The high pressure side of the Rosenbauer pump shall be plumbed to the front bumper turret.

High Pressure Plumbed to Hose Reel

PLUMBING - HIGH PRESSURE SIDE

The high pressure side of the Rosenbauer pump shall be plumbed to the hose reel.

Pump Instln, Midship PTO, By Bdy Bldr

MIDSHIP FIRE PUMP DRIVESHAFTS AND INSTALLATION

The midship PTO fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. The PTO drive shaft(s) shall be spin balanced prior to final installation.

Pump Test, UL

UNDERWRITERS LABORATORIES FIRE PUMP TEST

The pump shall undergo an Underwriters Laboratories Incorporated test per applicable sections of NFPA standards, prior to delivery of the completed apparatus.

The UL acceptance certificate shall be furnished with the apparatus on delivery.

Pump Test, Label

FIRE PUMP TEST LABEL

A fire pump performance and rating label shall be install on the fire apparatus pump panel. The label shall denote levels of pump performance and testing completed at factory. These shall include GPM at net pump pressure, RPM at such level, and other pertinent data as required by applicable NFPA standards. In addition, the pressure control device, tank to pump flow tests, and other required testing shall be completed.

In addition, the entire pump, suction and discharge passages shall be hydrostatically tested to a pressure as required by applicable NFPA standards. The pump shall be fully tested at the pump manufacturer's factory to the performance specifications as outlined by applicable NFPA standards. Pump shall be free from objectionable pulsation and vibration.

If applicable, the fire pump shall be tested and rated as follows:

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% or rated capacity at 165 pounds net pressure.

Dump-Relief Vlv, Suction Side, ELK #240

INTAKE RELIEF/DUMP VALVE

One (1) Elkhart Model 40, 2-1/2" intake relief/dump 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 250 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 to the side the apparatus, away from the pump operator, and shall terminate with a 2-1/2" NST male thread. The outlet shall be marked with an engraved tag "Intake pressure relief outlet - Do Not Cap".

Heat Exchanger, Engine, Complete

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually opened valve, mounted at the operator's panel, shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator cooling hose. The system shall provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant. The complete installation shall be done by the fire apparatus manufacturer.

A nameplate label shall be installed on the pump panel noting "engine cooling system" with "on-off" opening directions noted.

Heat exchanger, Hose, Silicone

HEAT EXCHANGER PIPING SYSTEM

The heat exchanger system shall be piped with silicone type hoses.

Anodes, Pump

PUMP ANODES

One (1) pair of replaceable corrosion-protection anodes shall be provided, one (1) on the discharge and one (1) on the intake side of the pump.

Piping, Stnls Stl - 1250 GPM & Up

PUMP PLUMBING SYSTEM

The fire pump plumbing system shall be of rigid or flexible piping with stainless steel fittings. Victaulic couplings shall be installed to permit flexing of the plumbing system and allow for quick removal of piping or valves for service. Flexible hose couplings shall be threaded stainless steel or Victaulic connections.

The fire pump and plumbing shall be hydrostatically tested in compliance to applicable sections of NFPA standards, with test results submit with the delivery documentation.

Pump Drain, Master, Manifold, Push Pull Type

FIRE PUMP MASTER DRAIN

The fire pump plumbing system and fire pump shall be piped to a single pump panel mounted push-pull type master pump drain assembly.

ADDITIONAL LOW POINT DRAINS

The plumbing system shall be equipped with additional low point manually operated drain valves to allow total draining of the fire pump plumbing system. These valves shall be accessible from the side of the vehicle and labeled.

Dschg Bleeder, Mnl 1/4 Turn (std) - Spec Only

A 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size.

Dschg Bleeder, Mnl 1/4 Turn (std) - Spec Only

A 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size.

Dschg Bleeder, Class 1, Automatic - Spec Only

A Class 1 automatic type 3/4" bleeder valve shall be installed on discharges larger than 1-1/2" in size.

Dschg Bleeder, Class 1, Automatic - Spec Only

A Class 1 automatic type 3/4" bleeder valve shall be installed on discharges larger than 1-1/2" in size.

Dschg Bleeder, Class 1, Mnl 1/4 Turn

A Class 1 3/4" cast bronze quarter-turn drain and bleeder valve shall be installed on gated intakes and discharges larger than 1-1/2" in size.

The valve shall be 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 provision.

Dschg Bleeder, Class 1, Mnl 1/4 Turn - Spec Only

A Class 1 3/4" cast bronze quarter-turn drain and bleeder valve shall be installed on gated intakes and discharges larger than 1-1/2" in size.

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Intk Manifold, Stnls Stl

STAINLESS STEEL INTAKE MANIFOLD

The suction manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute. The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible Victaulic coupling.

The stainless steel manifold assembly shall have a ten (10) year warranty.

Dschg Manifold, Stnls Stl

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The discharge manifold assembly shall have radiused sweep elbows to minimize water turbulence into the discharge header. The manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible Victaulic coupling.

The stainless steel manifold assembly shall have a ten (10) year warranty.

Painting, Pump & Piping, Silver

FIRE PUMP & PLUMBING SYSTEM PAINTING

The fire pump and plumbing system shall be painted by the fire apparatus manufacturer. The fire pump and the plumbing shall be painted metallic silver.

Threads, National Hose (NST)

HOSE THREADS

The hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intakes and discharges.

Intk, Aux, Gtd, 2-1/2", Right Side

RIGHT SIDE -- 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on right side pump panel to supply the fire pump from an external water supply. The control valve shall be a quarter turn ball valve and shall have 2-1/2" NST female thread of chrome plated brass.

The intake shall be equipped with a 3/4" drain and bleeder valve. A nameplate and removable screen shall be installed.

===== Front RH Bumper 6" Gtd, Intks - Pick to Select =====

Intk, Gtd, 6" NST, 5" Air Operated Vlv, Front RH Bumper

GATED 6" INTAKE -- FRONT RIGHT BUMPER

One (1) front right side bumper 6" gated suction intake shall be provided. Intake pipe shall be provided with drain valves mounted at all low points of plumbing.

Intake shall be gated with an air operated 5" butterfly valve, with control at the pump operator's panel. The valve operating mechanism shall prevent movement of the valve from the fully closed position to the fully open position or vice versa, in less than three seconds. The valve control shall have a colored identification label.

A pressure dump/relief valve shall be included that is factory preset at 125 PSI and field adjustable from 75 to 250 PSI. The pressure dump/relief valve shall provide over-pressure protection for the suction hose even when the intake valve is closed. The outlet of the dump/relief valve shall be 2.5" in diameter to allow directing the discharge flow away from the pump operator's position.

An inlet fitting with 5" IPT x 6" NST thread shall be provided, complete with a removable strainer screen. The front intake plumbing shall be bolted to the pump and be assembled with Victaulic type couplings.

Intk, Frnt, RH Vert, Abv Bumper, S/S Pipe (Cstm)

FRONT RIGHT SIDE INTAKE -- VERTICAL ABOVE BUMPER

The front suction 5" piping shall extend vertical, then straight-forward above the bumper level. The piping shall be stainless steel with Victaulic couplings installed.

Intk, Gtd, 6", Air Operated, RH Side, Bhnd Pnl

GATED 6" INTAKE -- RIGHT SIDE PUMP PANEL

One (1) 6" gated suction intake shall be installed behind the right side pump panel. Intake shall be gated with an air operated 6" butterfly valve and shall have control switch at the pump operator's panel. The power valve operating mechanism shall prevent movement of the valve from the fully closed position to the fully open position or vice versa, in less than three seconds. The control switch shall have a colored identification label.

A pressure dump/relief valve shall be included that is factory preset at 125 PSI and field adjustable from 75 to 250 PSI. The pressure dump/relief valve shall provide over-pressure protection for the suction hose even when the intake valve is closed. The outlet of the dump/relief valve shall be 2.5" in diameter to allow directing the discharge flow away from the pump operator's position.

An inlet fitting with 6" NST thread shall be provided, complete with a removable strainer screen.

Elbow, 90 Deg Swivel, 6", Chrome Pltd Brass

90 DEGREE SWIVEL 6" ELBOW

The front intake shall be equipped with a 6" chrome plated swivel adapter. The unit shall be equipped with 5" IPT female thread x 6" NST male thread.

Plug, 2-1/2", Color Coded, Rocker Lug, w/Chain

One (1) 2-1/2" color coded plug shall be provided. The threads shall be NST and the plug shall be equipped rocker lugs and chain or cable securement.

Cap, 6", Chrome Long Hndl

One (1) 6" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

Cap, 6", Color Coded, Long Hndl

One (1) 6" color coded cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

Tank-To-Pump, Water Tank, 4", Tmbrwlf

WATER TANK TO PUMP LINE

One (1) 4" water tank to the rear mounted fire pump line shall be provided with a 4" electric over air operated butterfly style suction valve, 4" piping, and with flex hose and stainless steel hose clamps. The tank to pump line shall be equipped with a check valve to prevent pressurization and the possibility of backfilling of the water tank. The valve shall be capable of being controlled at the pump operator's panel and in the cab.

The line shall be flow tested during the fire pump testing and shall meet applicable requirements of NFPA standards.

Intk Vlv Cntrl, ELK, 2-1/2" Elec

The specified 2-1/2" intake valve shall be equipped with one (1) Elkhart 12 volt electric motor valve actuator, with LED position indicator lights. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Tank Fill/Cooling Line, Water Tank, 1-1/2"

FIRE PUMP TO WATER TANK FILL LINE

One (1) 1-1/2" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 1-1/2" piping and flex hose to tank. The valve control handle shall have a nameplate located near the valve control.

Speedlay Dschgs, (2) 1-1/2", Ahead Pump Panel

TWO (2) 1-1/2" SPEEDLAY DISCHARGES

Two (2) 1-3/4" pre-connect hose speedlays shall be installed ahead of the front of body or pump enclosure, controlled with quarter turn 2" diameter ball valves. The outlets shall be equipped 2" NPT female swivel x 1-1/2" male NST hose threads.

The hosebed decking shall be constructed with slots integrated into the hosebed floor.

The hose bed shall provide a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with hose and nozzle provided by fire department.

Speedlay Dschg, (1) 2-1/2", Ahead Pump Panel

2-1/2" SPEEDLAY DISCHARGE

One (1) 2-1/2" pre-connect hose speedlay shall be installed ahead of the front of body or pump enclosure, controlled with quarter turn 2-1/2" diameter ball valve. The outlet shall be equipped 2-1/2" NPT female swivel x 2-1/2" male NST hose threads.

The hosebed decking shall be constructed with slots integrated into the hosebed floor.

The hosebed shall provide a minimum capacity of 150 feet of 2-1/2" diameter double jacket hose with hose and nozzle provided by fire department.

Speedlay Cvr, Vinyl, Ends

VINYL SPEEDLAY END COVERS

The speedlay hosebeds shall be equipped with a vinyl cover with end flaps and shall be secured with a hook and loop fastening system.

Speedlay Rollers, "U" Shaped, Both Sides

ROLLERS FOR PRE-CONNECTED SPEEDLAY HOSE BED

The pre-connect speedlay hosebed shall be equipped stainless steel "U" shaped roller system, one on each end of the hosebed.

Speedlay Rollers, "U" Shaped, Both Sides

ROLLERS FOR PRE-CONNECTED SPEEDLAY HOSE BED

The pre-connect speedlay hosebed shall be equipped stainless steel "U" shaped roller system, one on each end of the hosebed.

Speedlay, 1-3/4", Removable Hose Tray, Alum

SLIDE OUT TRAY FOR PRE-CONNECTED HOSE BEDS

The 1-3/4" pre-connect hosebed(s) shall be equipped with a "U" shaped aluminum hose tray. The unit shall be equipped with pull out hand holes and retaining devices to secure the tray, nozzle, and hose in transit.

Speedlay, 2-1/2", Removable Hose Tray, Alum

SLIDE OUT TRAY FOR PRE-CONNECTED HOSE BEDS

The 2-1/2" pre-connect hosebed(s) shall be equipped with a "U" shaped aluminum hose tray. The unit shall be equipped with pull out hand holes and retaining devices to secure the tray, nozzle, and hose in transit.

Dschg, 2-1/2", Left Side, Pump Panel

LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

Two (2) 2-1/2" discharge shall be installed on the left side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads and a chrome plated elbow with rocker lugs with 2-1/2" NST swivel female x 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

Dschg, 2-1/2", Right Side, Pump Panel

RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

Two (2) 2-1/2" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads and a chrome plated elbow with rocker lugs with 2-1/2" NST swivel female x 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

Dschg, 3" x 4" NST, Right Side, Pump Panel

RIGHT SIDE PUMP PANEL -- 3" x 4" DISCHARGE

One (1) 3" discharge shall be installed on the right side pump panel area and shall be controlled by a full flow 3" slow-close quarter turn ball valve. The discharge shall have 4" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

Dschg, 2-1/2", Right Rr

REAR RIGHT SIDE -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the right side rear panel of the apparatus body and shall be controlled by a quarter turn ball valve on the pump panel. The discharge shall have 2-1/2" NPT x 2-1/2" NST male hose threads adapter with 30 degree slant. The outlet shall be equipped with an engraved nameplate label shall be installed adjacent the valve control handle.

Dschg, 1-1/2", Front RH Bumper Monitor, Tmbrwlf

FRONT BUMPER MONITOR DISCHARGE

One (1) 1-1/2" discharge shall be piped to the right front bumper area. The quarter turn ball valve shall be controlled in the chassis cab. The monitor shall be supplied by a flexible high pressure hose mounted with adequate support brackets and abrasion resistant mountings.

Low point drains shall be installed where necessary. A color coded nameplate label shall be provided.

Dschg, 1-1/2", Front Bumper Monitor, Plumbed High Pressure

The front bumper monitor discharge shall be piped to the high pressure side of the fire pump.

Elbow, 2-1/2"F x 2-1/2"M, Chrome

Two (2) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

Elbow, 2-1/2"F x 2-1/2"M, Chrome

One (1) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST

male hose threads.

Elbow, 2-1/2"F x 2-1/2"M, Chrome

Two (2) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

Elbow, LW Alum, 5" Storz x 4"F

One (1) lightweight aluminum elbow with 30 degree slant and bright finish shall be provided. Threads shall be 5" Storz with lugs and manual locks x 4" female swivel NST with rocker lugs.

Cap, 2-1/2", Color Coded, Rocker Lug, w/Chain

Two (2) 2-1/2" NST rocker lug color coded brass vented cap and cable or chain securement shall be provided.

Cap, 2-1/2", Color Coded, Rocker Lug, w/Chain

Two (2) 2-1/2" NST rocker lug color coded brass vented cap and cable or chain securement shall be provided.

Cap, 2-1/2", Color Coded, Rocker Lug, w/Chain

One (1) 2-1/2" NST rocker lug color coded brass vented cap and cable or chain securement shall be provided.

Cap, Color Coded, 5" Storz, w/Cable

One (1) 5" lightweight aluminum color coded Storz cap with cable or chain securement shall be provided.

Monitor Dschg, 3", Over Midship Pump Enclsr

3" MONITOR DISCHARGE

One (1) 3" discharge shall be piped to the area over the pump enclosure with 3" NPT male threads provided. The pipe shall be equipped with Victaulic couplings (if necessary) and shall be properly secured to prevent movement when a monitor or deck gun is attached. The quarter turn ball valve shall be controlled on pump panel.

A color coded nameplate label shall be provided adjacent the valve control handle.

Mntr, TFT, Hurricane, RC, Alum, 3"FL x 2.5"M NH, No Nzl

1250 GPM REMOTE CONTROLLED MONITOR

One (1) Task Force Tips Hurricane RC, model # XFIH-E11A remote controlled monitor shall be provided. The monitor shall be controlled by a monitor mounted switch panel with functions that control rotation, elevation and nozzle patterns.

The monitor shall have the following travel capabilities:

§ Full horizontal rotation with travel 225 degrees left and right of center

§ A full 180 degrees of vertical travel with stops at straight up and straight down

§ Field changeable rotation stops shall be provided at 45, 90 and 135 degrees left and right of center

§ Flow capability of 1250 GPM

§ Maximum operating pressure of 200 PSI

The electrical controls for the monitor shall be waterproof and utilize current limiting and position encoders to protect the drive train at the ends of travel. Thirty feet of ultra flex robotic power cable shall be pre-wired to the monitor and include a unique cable guide for the motors. An electrical connection for a TFT remote control nozzle shall be provided. The monitor shall be equipped with large manual override handles for use in the event of power failure.

For resistance to corrosion the monitor shall be constructed from hardcoat anodized aluminum with a silver powder coat interior and exterior finish. A built in automatic drain designed to protect the monitor from freezing and a threaded port for an optional pressure gauge shall be provided.

The monitor shall be configured with a 3" ANSI 150 companion flange inlet and 2-1/2" male NH outlet.

Mntr, Wireless Remote Cntrl

WIRELESS REMOTE MONITOR CONTROL STATION

Task Force Tips wireless control station for Monsoon, Hurricane, and Tornado series remote control monitors shall be provided.

The wireless transmitter shall be designed for remote usage and operate up to 500 feet away from the vehicle mounted base unit antenna/receiver. The remote control includes switches to control horizontal rotation, vertical elevation and nozzle stream pattern. The switch enclosure shall be weatherproof. The handheld unit shall have rechargeable NiCad batteries and a charging base that also functions as a storage cradle which shall be installed in a weather protected area. The included receiver antenna shall be installed in an unobstructed open area.

This station shall be designated auxiliary and requires that a TFT Y4E-RP primary station be installed. A 10 foot long cable shall be supplied for connection to the primary operator station.

Mntr, TFT, Frnt Bmpr, Elec, Tmbrwlf

ELECTRICALLY REMOTE CONTROLLED MONITOR

One (1) TFT Tornado Model Y2C-52 bumper monitor package with a Task Force Tips Model B-TO-ER electric nozzle with a flow rate of 10-100 GPM shall be provided and installed. The lightweight monitor shall have a one (1") vaned waterway and be capable of flowing up to 125 GPM. The monitor shall be equipped with a 12 volt electric motor. The monitor is designed to mount on a front bumper of an apparatus. Controls for the monitor shall be mounted inside the chassis cab.

The monitor shall be plumbed with 1-1/2" inch flexible hose with stainless steel couplings and have a 1-1/2" valve. The valve shall be electrically operated with valve control located in chassis cab.

Proper switching shall be provided in the cab for operation of high pressure water to the turret within reach of the Driver and Officer.

There shall be a 3/4" drain furnished in the supply line to the monitor.

Nzl, Mstr Strm, TFT, M-R, 1250GPM

MASTER STREAM NOZZLE

One (1) Task Force Tips Master Stream 1250, # MR1250-NJ automatic master stream nozzle shall be provided. The nozzle shall be designed for use on monitors, ladder pipes, deluge guns and aerial platforms. For corrosion resistance the nozzle shall be constructed for lightweight hardcoat anodized aluminum.

The nozzle shall have a flow capability of 300 to 1250 GPM at a constant pressure rating of 100 PSI. A UV resistant rubber bumper with integral teeth designed to produce a finger free fog pattern shall be included. A halo ring shall be included to assist with stream shape control. The nozzle shall be suitable for foam solution application and designed to accept the Task Force Tips FJ-LX-M low expansion air aspirating attachment. The nozzle shall be configured with a 2-1/2" female NH swivel rocker lug coupling.

Mntr, Tele Ext, TFT Elec

REMOTE CONTROL TELESCOPING MONITOR PIPE

Task Force Tips model # XGA38 3" electrically telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" using panel mounted switches. These switches shall control a 12 volt motor and be capable of moving the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees. The motor shall be weatherproof in design and have an accessible manual override control for use in the event power failure occurs. A 10' power cable shall be supplied for connection from the panel switches to the motor.

A sensor shall be located on the waterway that signals a 12 volt indicator light installed in the cab to illuminate to indicate that the monitor is raised.

The aluminum riser shall have a 3" waterway; hardcoat anodized finish and be furnished with a 3" Victaulic inlet coupling and a TFT Code RLM male connection for a TFT remote control monitor with TFT Code RLF female inlet.

Hose Reel, HAN, Frnt Bmpr, Alum

ELECTRIC REWIND HOSE REEL

One (1) Hannay unpainted aluminum hose reel with leak proof ball bearing swing joint, adjustable friction brake, electric and crank rewind shall be installed. The reel shall be plumbed with wire reinforced, high-pressure hose coupled. The reel shall be bolted to a mounting system for easy service or removal.

The hose reel is to be mounted in the front bumper extension.

Hose Reel, Alum Cvr Over Reel

ALUMINUM COVER FOR HOSE REEL

The hose reel shall be installed within an aluminum tread plate enclosure for protection against cold weather. Access to the hose and nozzle shall be through a hinged door.

Hose Reel, Rwnd Cntrl, Weatherproof Push Button

HOSE REEL REWIND SWITCH

A push button hose reel rewind switch shall be installed to control the electric rewind hose reel. The exact location shall be determined at construction.

Dschg, Hose Reel, 1", Class 1 Valve

1" HOSE REEL DISCHARGE

A Class 1, 1" ball valve gated discharge line shall be furnished with the valve located adjacent to the booster reel and plumbed using 1" I.D. wire reinforced, high pressure hose. The valve shall be operated using a Class One quarter-turn chrome plated handle attached directly to the valve complete with 1" x 1 1/2" ID label.

Dschg, Hose Reel, Plmbd to High Pressure

HOSE REEL DISCHARGE

The specified hose reel shall be piped to the high pressure side of the fire pump.

Hose, Water, 800#, 3/4" x 150', 50' Lengths

HOSE FOR REEL

Three (3) 50' foot lengths (150') of 3/4" water hose with pin lug couplings and 800 PSI working pressure shall be provided and mounted on the specified hose reel.

Nzl, Rosenbauer, Servo-Nepiro, High Pres

HOSE REEL NOZZLE

One (1) Rosenbauer Servo-Nepiro 'high pressure' nozzle with detachable foam tube shall be furnished and installed on the specified booster hose reel.

Nzl, Mtg, Hose Reel

NOZZLE MOUNTING

The specified booster reel nozzle shall be mounted adjacent the hose reel area in secure clip or clamp type mountings.

Roller, Hose Reel, Front

HOSE ROLLER

One (1) stainless steel roller assembly shall be provided on the front hose reel.

Vlv Cntrl, AKR, 1.5" Elec, KZCO

The Akron valve shall be equipped with a KZCO KZ Valve Model EH-2 12 volt electric actuator. The valve control shall be push button or rocker type switch with indicator light provided. When the valve is open, the indicator light shall illuminate. When the valve is closed the indicator light shall be off. The valve control switch shall be labeled appropriately.

Dschrg Vlv Cntrl, ELK, 2" Elec

Two (2) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 2" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec

Two (2) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 2-1/2" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec

One (1) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 2-1/2" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec

Two (2) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 2-1/2" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec

One (1) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 2-1/2" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 3" Elec

One (1) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 3" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 3" Elec

One (1) Elkhart valve equipped with an Elkhart 12 volt electric motor valve actuator shall be provided on the specified 3" discharge. The momentary electric switch actuator shall also have 'auto-open' or 'auto-close' feature. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 2-1/2" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 3" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Dschrg Vlv Cntrl, ELK, 3" Elec, #UBEC2 Pres Mtr

The valve shall be controlled with a UBEC2 push button type control with position indicator lights and a pressure meter. A color coded engraved type name plate installed over the valve control.

Vlv Mfger, AKR, 8800, (1-1/2"), KZCO Elec Cntrl

The specified valve shall be an Akron 8800 Series one and one half-inch (1-1/2") valve with a stainless ball.

Vlv Mfger, ELK, (2"), Elec Cntrl

The specified valve shall be an Elkhart two-inch (2") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK, (2-1/2"), Elec Cntrl

The specified valve shall be an Elkhart two and one half-inch (2-1/2") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK, (2-1/2"), Elec Cntrl

The specified valve shall be an Elkhart two and one half-inch (2-1/2") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK, (2-1/2"), Elec Cntrl

The specified valve shall be an Elkhart two and one half-inch (2-1/2") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK, (2-1/2"), Elec Cntrl

The specified valve shall be an Elkhart two and one half-inch (2-1/2") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK, (3"), Elec Cntrl

The specified valve shall be an Elkhart three-inch (3") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK, (3"), Elec Cntrl

The specified valve shall be an Elkhart three-inch (3") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Vlv Mfger, ELK (2-1/2")

The specified valve shall be an Elkhart two and one half-inch (2-1/2") valve with a brass ball. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valves shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance.

Foam Sys, F/PRO, 2001 Pkg, Cls A/B, 2.6G, 12V - Tmbrwlf

FOAM PRO FOAM SYSTEM

One (1) FoamPro part number S105-2001 electronic foam proportioning system shall be provided. The system shall be capable of using both Class A and most Class B foam concentrates. The foam proportioning operation

shall be designed for direct measurement of water flows, and shall remain consistent within the specified flows and pressures. The system shall be capable of accurately delivering foam solution as required by applicable sections of the NFPA standards.

The system shall be equipped with a digital electronic control display suitable for installation on the pump panel. There shall be a microprocessor incorporated within the electronic controls that shall receive input from the system's flowmeter, while also monitoring the foam concentrate pump output. The microprocessor shall compare the values to ensure that the desired amount of foam concentrate is injected onto the discharge side of the fire pump.

Paddlewheel-type flowmeter(s) shall be installed in the discharges specified to be "foam capable". When the use of more than one (1) flowmeter is required, an electronic interface module will be provided to total these flows and send the flow total to the microprocessor in the computer control module.

The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

1. Provide push-button control of foam proportioning rates from 0.1% to 10%, in 0.1% increments
2. Show current flow-per-minute of water
3. Show total volume of water discharged during and after foam operations are completed
4. Show total amount of foam concentrate consumed
5. Simulate flow rates for manual operation
6. Perform setup and diagnostic functions for the computer control microprocessor
7. Flash a "low concentrate" warning when the foam concentrate tank (s) become low
8. Flash a "no concentrate" warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) become empty

A 12 volt electric motor driven positive displacement foam concentrate pump shall be provided and installed in an accessible location. The pump capacity range shall be 0.1 to 2.6 GPM (9.5L/min) at 150 PSI with a maximum operating pressure up to 400 PSI (27.6 BAR). The system shall draw a maximum of 40 amps at 12 volts. An electronic driver for the pump motor shall be mounted to the base of the pump and shall receive signals from the computer control display, and regulate the 1/2 horsepower (.40 Kw) electric motor directly coupled to the concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate, preset by the pump operator is injected into the water stream.

A full flow check valve shall be provided to prevent foam contamination of the fire pump and water tank or water contamination of the foam tank.

Components of the complete proportioning system as described above shall include:

1. Operator control and display
2. Paddlewheel flowmeter(s)
3. Pump and electric motor/motor driver
4. Wiring harnesses
5. Low level tank switch
6. Foam injection check valve
7. Main waterway check valve

The foam system shall be installed and calibrated to manufacturer's requirements. In addition the system shall be tested and certified by the apparatus manufacturer to meet applicable NFPA standards.

The foam system design shall be tested and pass environmental testing in accordance to SAE standards. The system shall be third party tested to certify compliance with RFI/EMI emissions per MIL-STD-416E.

An installation and operation manual shall be provided for the unit. The system shall have a one (1) year limited warranty by the foam system manufacturer.

CONTROL CONNECTION CABLE FOAM SYSTEM

The FoamPro 2001 Series foam system shall be provided with a twelve (12) foot control cable from the controller to the foam pump assembly.

PUMP PANEL CONTROL FOAM SYSTEM

The FoamPro 2001 Series foam system shall be provided with pump panel mounted control assembly.

INSTRUCTION AND RATING LABEL -- FOAM SYSTEM

A FoamPro part number 6032-0020 instruction and system rating label shall be provided. The label shall display information for a FoamPro 2001 Series foam system and shall meet applicable sections of the NFPA standards.

SCHEMATIC LABEL -- FOAM SYSTEM

A FoamPro foam system schematic label shall be installed on the pump panel near foam controls. The label shall be a diagram of the FoamPro 2001 foam system layout and shall meet applicable sections of the NFPA standards.

Foam System, RBA, Fix Mix, Pump Panel and Cab Cntrl

ROSENBAUER FOAM SYSTEM -- PUMP PANEL& CAB CONTROLLED

One (1) built in Rosenbauer Fix Mix foam system, suitable for all commercially available foaming agents, shall be incorporated into the construction of the Rosenbauer pump. The system shall provide a constant proportioning rate of 0.5% regardless of water pressure and volume. The Rosenbauer Fix Mix system shall be capable of providing foam at high pressure.

The foam system shall be controlled from the pump panel and the chassis cab console.

Foam Capability, HP-FIXMIX & NP Foam Pro - Tmbrwlf

HIGH PRESSURE & NORMAL PRESSURE FOAM CAPABILITY

The Rosenbauer Fix Mix automatic foam proportioning system shall be plumbed to the high pressure discharges only.

The Foam Pro 2001 shall be plumbed to the officer's side rear normal pressure discharge, and the officer's side rear normal pressure discharge directly below the hosebed.

Remote Foam Activation Swtch and Lt

REMOTE FOAM ACTIVATION SWITCH AND LIGHT

There shall be a switch and indicator light mounted in the cab to energize the foam pump remotely for pump and roll operations.

Remote Foam Activation Swtch and Lt

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Foam Plmbg, Sngl Class A Tank, 1" Mnl Vlv

1" FOAM TANK CONTROL -- CLASS A

One (1) Class A foam tank shall be plumbed with 1" valve and corrosion resistant hose from the foam tank to the foam inlet of the foam system. The manually opened valve shall be provided behind the pump panel with a label.

Foam Tank, Intgrl Poly, 30 Gal, Class A

INTEGRAL CLASS A FOAM TANK -- 30 GALLON

One (1) thirty (30) gallon Class A foam tank shall be installed within the water tank. The non-corrosive foam tank shall meet applicable sections of NFPA standards. The foam concentrate tank shall be provided with sufficient wash partitions so that the maximum dimension perpendicular to the plane of any partition shall not exceed 36 inches. The swash partition(s) shall extend from wall to wall and cover at least 75 percent of the area of the plane of the partition.

The foam concentrate tank shall be provided with a fill tower or expansion compartment having a minimum area of 12 square inches and having a volume of not less than 2 percent of the total tank volume. The fill tower opening shall be protected by a completely sealed air-tight cover. The cover shall be attached to the fill tower by mechanical means. The fill opening shall be designed to incorporate a 1/4 inch removable screen and shall be located so that foam concentrate from a five (5) gallon container can be dumped directly to the bottom of the tank to minimize aeration without the use of funnels or other special devices.

The foam tank fill tower shall be equipped with a pressure/vacuum vent that enables the tank to compensate for changes in pressure or vacuum when filling or withdrawing foam concentrate from the tank. The pressure/vacuum vent shall not allow atmospheric air to enter the foam tank except during operation or to compensate for thermal fluctuations. The vent shall be protected to prevent foam concentrate from escaping or directly contacting the vent at any time. The vent shall be of sufficient size to prevent tank damage during filling or foam withdrawal.

A color coded label or visible permanent marking that reads "FOAM TANK FILL" shall be placed at or near any foam concentrate tank fills opening. A label shall be placed at or near any foam concentrate tank fill opening that specifies the type of foam concentrate the system is designed to use. Any restrictions on the types of foam concentrate that can be used with the system shall also be stated, and a warning message that reads "WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM."

The foam concentrate tank outlet connection shall be designed and located to prevent aeration of the foam concentrate and shall allow withdrawal of 80 percent of the foam concentrate tank storage capacity under all operating conditions with the vehicle level.

Foam Tank, UPF

The foam tank(s) shall be fabricated by United Plastic Fabricating.

Foam Tank Drain, 1" Gate Vlv, Under Tank

FOAM TANK DRAIN -- UNDER TANK

The foam tank shall have one (1) 1" gate valve drain provision installed.

Gauge, Dschg, Digital, In Cab, Pump and Roll

One (1) digital pressure gauge shall be provided in the cab for pump and roll operation. The gauge display shall be a waterproof display with super-bright digits at least 1/2" high. A weatherproof transducer (transmitter) shall be installed in the appropriate location in the piping system.

Gauge, Dschg, VMUX, in cab.

One (1) digital pressure gauge rated at 0-600 PSI shall be provided. The gauge shall display on the VMUX Vista display in the cab.

Pressure Gvrnr, FRC, In-Cntrl, w/Bdy TGA400

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING

One (1) Fire Research InControl series TGA400 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- 1) Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- 2) Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- 3) Pressure / RPM setting; shown on a dot matrix message display
- 4) Pressure and RPM operating mode LEDs
- 5) Throttle ready LED
- 6) Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- 7) Check engine and stop engine warning LEDs
- 8) Oil pressure; shown on a dual color (green/red) LED bar graph display
- 9) Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- 10) Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- 11) Battery voltage; shown on a dual color (green/red) LED bar graph display.

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

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

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

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

enhancements.

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

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

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

Hour Meter, Pump, Pump Panel

PUMP HOUR METER

One (1) pump hourmeter shall be provided on the operators pump panel.

Foam Tank Gauge, FRC, Class A, Pump Panel

CLASS A FOAM TANK GAUGE

One (1) Fire Research TankVision model WLA260-A00 foam tank indicator kit shall be installed at the operators panel. The kit shall include an electronic indicator module, a pressure sensor, a 10-ft sensor cable and a tank vent. The indicator shall show the volume of Class A foam concentrate in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive green label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low foam warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the foam tank near the bottom. No probe shall be placed on the interior of the tank. The foam tank vent shall be installed on the foam fill tower. Wiring shall be weather resistant and have automotive type plug-in connectors.

Foam Tank Gauge, in Cab, Digital, VMUX

FOAM TANK GAUGE

The apparatus shall be equipped with one (1) digital foam tank level gauge shall be installed in the chassis cab and displayed on the VMUX.

Air Blow Out, Tmbrwlf

AIR BLOWOUT

One (1) air blow out shall be provided for the high pressure side of the fire pump and all related high pressure discharges. The air supply must be supplied from an external source and be connected to an air inlet fitting located at or near the pump operators panel.

The air inlet shall be a Parker Model #B53 male with female fitting.
Air Blow Out, Hose Reel, Chassis Air

BOOSTER REEL AIR BLOWOUT

One (1) air blow out shall be provided for the booster reel. The air supply must be supplied from the chassis air system and be connected to an air inlet fitting located on the pump operators panel.

The air inlet shall be a Parker Model #B53 male with female fitting.
== General Pmpr/Tnkr-SafeScene Pump Cmpt - 111.080 10/09/08

Pump Enc, Top Mt, Safe-Scene, E/Alum, 45"W, S/lays

PUMP ENCLOSURE

The pump enclosure shall be located behind the cab and in front of the body, directly over the pump.

The pump enclosure shall be constructed of extruded aluminum tubing, welded together to form a modular component that is free standing and not attached to the body. The pump enclosure design shall allow the body and the enclosure to move independently from each other so as not to cause undue stress each component. A suitable gasket material shall be installed between the body and pump enclosure that will allow the two components to move as much as possible without interfering with each other.

The left side panel shall be approximately 32" high and 45" wide (front to rear) and shall be easily removable by lifting the panel out of it's attachment for immediate access to the entire pump and piping area. Latching mechanisms shall be provided.

A compartment of approximately 12" high x 40" wide x 24" deep shall be provided under the left side pump panel. The compartment shall be designed to extend to the full width of the body rub rails. A heavy duty aluminum treadplate hinged door shall be installed to drop down for access to the compartment. Two (2) gas filled spring loaded door openers shall be provided to assist the door in the open and closed position. A "D" ring handle style latch shall be provided.

A right hand running board shall be provided directly below the right side pump panel. Running boards shall be designed and fabricated as described elsewhere in these specifications.

Top Mount Pump Panel

The operator's control panel shall be mounted directly over the pump enclosure to provide a safe area for the operator to stand while operating the apparatus fire pump controls.

Gauges or visual displays shall be no more than 72-inches above the level where the operator stands to read the instruments. Central midpoint or center line of any control shall be no more than 72 inches vertically above the platform that is designed to serve as the operator's standing position.

A standing platform of slip resistant NFPA compliant aluminum treadplate shall be installed at the operator's position. This shall be approximately 20" deep and full width of the panel.

A guard constructed of ribbed aluminum tubing shall be installed for the operator's position to prevent accidental falling from operator's position.

~~Top of panel shall be installed at operator's eye level or below in~~

front of the panel. Due to reasons of personnel safety, no exceptions to this type of pump panel design shall be allowed.

Valves controls and handles shall be mounted on a panel slanted approximately 10 degrees that is approximately 15" deep and full width of the pump enclosure. Gauges and indicators as specified, shall be installed on another panel slanted approximately 45 degrees that is 13" high and full width.

All valves shall be controlled at the operator's panel. The controls shall be installed in a straight line and within easy reach of the operator. Line gauges shall be installed directly above the individual controls for ease of operation.

Extruded aluminum bolted in place and removable light hoods with a minimum of three (3) sealed light assemblies shall be provided to illuminate the right and left side pump panels. Lights shall be controlled by the operators panel light switch.

The following controls and equipment shall be provided on the pump panel or within the pump enclosure:

- 1) Electric primer.
- 2) Pump and plumbing area service lights.
- 3) Pressure control device and throttle control.
- 4) Fire pump and engine instruments.
- 5) Pump intakes and discharge controls.
- 6) Master intake and discharge gauges.
- 7) Tank fill control.
- 8) Tank suction control.
- 9) Water tank level gauge.
- 10) Pump panel lights.

Speedlay Pre-Connect Hosebeds

The speedlays specified shall be installed ahead of the pump enclosure in separate compartments. The speedlay compartments shall be designed to be a single hose lay stack for each crosslay. The bottom of the crosslay hose bed shall not be more than 65" above the ground--no exceptions.

Speedlay Equipment Compartments

Directly beneath the speedlay hose beds there shall be two (2) equipment storage compartments; one (1) each side. The compartment shall be approximately 38" high x 24" deep and as wide as crosslay hose bed. A single point twist-to-lock "D" ring stainless steel door latch shall be provided on each door.

Rng Brd, RH Pump Panel, Alum T/P, SM

RIGHT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The right side mount pump panel shall be equipped with side running board. The running board will extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surfaces shall be in compliance to applicable sections of NFPA requirements.

Pump Side Access Door, Upper RH, S/S

PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER

A pump panel access door shall be provided on the upper right side of the side mount pump enclosure. The access door shall be approximately 18" high and as wide as possible. The door shall be constructed of 14 gauge #304 brushed stainless steel with push button type latches.

Frt Access Pump Panel, Alum T/P, Rmvbl, Latches

FRONT ACCESS PUMP PANEL

A removable front access panel shall be installed on the front of the pump enclosure of the apparatus. The panel shall be constructed of aluminum tread plate and be fastened to the pump enclosure with push button or D-ring type latches.

Pump Panel, Bltd, LH

LEFT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the left hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

Pump Panel, Bltd, RH

RIGHT SIDE PUMP PANEL -- BOLTED

The pump panel installed on the right hand side of the pump enclosure shall be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

Pump Panel, Stnls Stl, LH/RH/Top, TM

PUMP PANEL -- TOP MOUNT

The left hand, right hand, and top mount pump panels shall be constructed of 14 gauge #304 brushed stainless steel and be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

Pump Control Panel, LogicColor

LogicColor™ PUMP CONTROL PANEL

The pump module shall be furnished with a durable, high-impact laminated .250" neutral gray control panel that graphically tracks each pump discharge control on the panel with a top-down perspective schematic of the apparatus depicting the location each discharge on the apparatus. Separate colorized graphical lines shall be used to graphically connect the actual discharge control on the panel to the imprinted schematic showing the location of the discharge.

The graphics used on the panel shall be function and easy-to-read. The connection points between the discharge controls on the panel and the schematic shall include all pump discharges; crosslays/speedlays; front and rear discharges; deck guns and hose reels.

The high-impact panel shall be affixed on top of a .125" thick aluminum panel and secured to the pump module. The control panel shall be furnished with a .250" stainless steel piano-style hinge and three (3) durable "lift-and-twist" latching mechanisms that will allow the panel to be dropped down for maintenance access. The underside of the panel shall be furnished with a 360 rubberized gasket affixed to the aluminum plate to prevent the introduction of moisture and water into the underside of the panel.

The pump control panel shall be designed in such a way as to ensure inclusion of other specified critical control points on the apparatus, including but not limited to the pressure governor, foam system, lights, air-horn button, etc.

Labels, Test Data and Safety Placards

LABELS

Safety, information, data, and instruction labels for apparatus shall be provided and installed at the operator's

instrument panel.

The labels shall include rated capacities, pressure ratings, and engine speeds as determined by the certification tests. The no-load governed speed of the engine, as stated by the engine manufacturer, shall also be included.

The labels shall be provided with all information and be attached to the apparatus prior to delivery.

Labels, Color Coded

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards.

Permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

Pump Panel Lt, Midship LH, With Switch

MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE

Three (3) Weldon #2025 or equal lights with clear lenses shall be installed under an instrument panel light hood on the left side pump panel. The lights shall be controlled by a switch located on the operators instrument panel.

Pump Panel Lt, Midship RH

MIDSHIP PUMP PANEL LIGHTS -- RIGHT SIDE

Two (2) Weldon #2025 or equal lights with clear lenses shall be installed under an instrument panel light hood on the right side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

Pump Panel Lt, Actuated w/Pump Engagement

PUMP PANEL LIGHTS

One (1) pump panel light shall be illuminated at the time the fire pump is engaged into operation. The remaining lights shall be controlled by a switch located on the operator's instrument panel.

Gauge, Test Taps

TEST TAPS

Test taps for pump intake and pump pressure shall be provided on the pump instrument panel and be properly labeled.

Water Tank Gauge, FRC, TankVision, Pump Panel

WATER TANK GAUGE

One (1) Fire Research TankVision model WLA200-A00 tank indicator kit shall be installed on the pump panel. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall place on the interior of the tank. Wiring shall be

weather resistant and have automotive type plug-in connectors.

Water Tank Gauge, Digital, VMUX Display in Cab

Water Tank Gauge, Digital, VMUX Display in Cab

One (1) Digital water tank indicator shall be installed to be read on the VMUX Vista display in the chassis cab..

== General HLHD / HRHD SA Pmpr/Tnkr - 328.000 03/31/08 ==

Warranty, Water Tank, UPF, BR

WATER TANK 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 America only). If the vehicle can remain in service, UPF will dispatch a service technician within 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 cancelled. 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 gives you specific legal rights, and you 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.

Water Tank, 750 Gal, Pmpr/Tnkr , Poly, Rect

WATER TANK - 750 GALLON

The apparatus shall be equipped with a seven-hundred-fifty (750) gallon polypropylene water tank. The tank

shall be equipped with a four-inch (4") overflow pipe.

Water Tank, Base Specs, Poly

The apparatus shall be equipped with a polypropylene water tank. The tank body and end bulkheads shall be constructed of .5" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal .375" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The .5" thick cover shall be recessed .375" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

The water fill tower shall be provided at front of the tank. The 0.5" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with schedule 40 PVC pipe through the tank.

The water tank sump shall be located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be located in the bottom of the tank sump.

The pump to tank refill connection shall be a sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

The water tank manufacturer shall certify the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

Water Tank, UPF, Base Specs, Poly

The apparatus shall be equipped with a water tank manufactured by United Plastic Fabricating.

Water Tank, Fill Tower, 10" x 10", General

WATER TANK FILL TOWER

A fill tower measuring approximately 10" x 10" square shall be provided on the water tank.

Water Tank Clean-out & Plug, 3"

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.

Hosebed, Pmpr, <168" L, HD, 71" Wide - MN

HOSEBED WIDTH

The width of the pumper body hosebed shall be 71".

Hosebed, Grating, Extrd Alum, <168" Long - MN

ALUMINUM HOSEBED GRATING

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 6" wide, space 1/2" apart and shall be welded into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

Hosebed, Strge Cpcty, 55 Cubic Feet, Minimum

HOSE BED STORAGE CAPACITY

The hose bed shall be designed to have a storage capacity for a minimum of 55 cubic feet of fire department supplied fire hose.

Hosebed, Strge Cpcty 3" DJ Hose (50-ft Lngth)

The hose bed shall be designed to have storage capacity for four (4) 50-ft lengths of 3" Double Jacket fire hose.

Hosebed, Strge Cpcty 5" LDH SJ Rubber (100-ft)

The hose bed shall be designed to have storage capacity for twelve (12) 100-ft lengths of 5" LDH Single Jacket rubber fire.

Hosebed, Divider, 1/4" Alum - MN

ALUMINUM HOSEBED DIVIDER

Two (2) adjustable hosebed divider constructed of .250" aluminum shall be installed on the apparatus.

The divider shall be fully adjustable, mounted using extruded aluminum track at the rear and aluminum "C" channel tracks at the front of the divider for full side to side adjustment.

(1) Main Hosebed Divider (Stationary)

MAIN HOSEBED DIVIDER

One (1) stationary hosebed divider shall be provided in the main hosebed.

The hosebed divider shall be fabricated of 1/4" smooth aluminum sheet stock, pressed into a "T" shaped aluminum extrusion for added strength along the bottom and front edges of the divider.

Divider shall be bolted in place, front and rear, to allow for ease of removal or relocation.

Hosebed, Divider, Handhole Cutouts

Each hosebed divider installed on the apparatus shall be provided with a hand hole cut-out approximately 3" wide x 8" long.

Hosebed, Partition, Front of Hosebed, > 48" - MN

One (1) stationary hosebed partition shall be provided in the main hosebed, mounted left to right. The partition shall be fabricated of 1/4" smooth aluminum. Partition shall be bolted in place using stainless steel fasteners to allow for ease of removal or relocation.

Hosebed Cvr, Alum T/P, <168" L, 49-74" Wide - MN

ALUMINUM HOSEBED COVER

Polished aluminum treadplate hosebed covers shall be furnished, extending the full length and width of the main hosebed.

Covers shall be fabricated of .125" polished aluminum treadplate with cross bracing for maximum strength, and to support the weight of a firefighter standing on the covers when closed. The covers shall be of the sloped design for proper water runoff. Each cover to be equipped with a full length stainless steel piano hinge. Hosebed covers shall include heavy duty stops to support them when in the opened position.

Pwr Oprtd, Hosebed Cvr, Alum T/P, <180" L

POWER OPERATED ALUMINUM HOSEBED COVER

The polished aluminum treadplate hosebed covers extending the full-length and width of the main hosebed shall be equipped with power operated actuators to open the covers. Hosebed covers shall include heavy-duty stops to support them when in the opened position.

Hosebed Lts, Recess In Sides, Rr Swtch

HOSEBED LIGHTS

Two (2) lights shall be recessed into the side panel of the hosebed to provide illumination for repacking of fire hose. The 12 volt lights shall be controlled by a switch located on the rear panel of the pumper body.

Hosebed Cvr, Underside Strge for Backboard

BACKBOARD STORAGE AREA

Two (2) slide in storage rack shall be fabricated and attached to the underside of the aluminum hosebed cover. A mechanism for holding the backboard in place while in transit shall be supplied.

Hosebed Cvr, Underside Strge for Backboard

BACKBOARD STORAGE AREA

Two (2) slide in storage rack shall be fabricated and attached to the underside of the aluminum hosebed cover. A mechanism for holding the backboard in place while in transit shall be supplied.

Rr Vinyl Flaps for Alum Cvr

REAR VINYL FLAPS FOR ALUMINUM COVER

There shall be a vinyl flaps attached to each aluminum hosebed cover. The vinyl flaps shall cover the area on the rear of the hosebed from top to bottom. The flaps shall be independent of each other but attachable with velcro in the center. The bottom edge of the flap shall be secured utilizing a hook and loop fastening system.

BODY CONSTRUCTION

Bdy Const - General Extrd Alum - SA Pmpr/Tnkr

HEAVY DUTY EXTRUDED ALUMINUM BODY

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 superstructure, substructure and framing shall be 6061-T6 alloy aluminum. For strength and rigidity, all aluminum sheets utilized in the apparatus body, hose body and compartment sides shall be a minimum of **3/16"** 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 fasteners use in the apparatus body shall be attached with Ny-Lok type fasteners.

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 running boards shall be attached using a minimum of 1/4" diameter machine bolt fasteners. Fasteners used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc shall be 3/16" in diameter.

BODY SUPERSTRUCTURE CONSTRUCTION

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.

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.

The compartments shall be designed to provide protected raceways for vertically hinged door fastener retention elements. This requirement shall eliminate the possibility of door hinge hardware from being damaged by or damaging equipment stored in the compartments.

The compartment door openings are to be full width of the compartment with no loss of space. The raceways shall be designed to allow door hardware removal by a single person with simple hand tools.

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.

Compartment flooring shall be constructed of a combination aluminum extrusion and aluminum treadplate welded in place to the extruded aluminum framework creating a double compartment floor for added strength. Due to the high usage and wear and tear caused by removal of equipment, only treadplate aluminum with a raised pattern will be acceptable for compartment flooring. Bolted or welded in smooth raw aluminum or painted aluminum does not meet the intent nor technical requirement of raised pattern treadplate.

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

The tops of the side exterior compartments shall be constructed of NFPA #1901 Standards compliant non-slip polished 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 .50" 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.

Electrolysis Corrosion Cntrl

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

All 3/8" diameter and smaller screws and bolts shall be stainless steel with a powdered aluminum coating. This coating shall be bonded metallurgically to the stainless screws to prevent peeling and flaking. This coating is designed to reduce the potential for electrolysis and corrosion to occur where items are assembled and attached.

Due to the expected life of the vehicle, proposals will only be acceptable from manufacturers that include these corrosion features.

Dr Locks, Roll-Up, Ea

DOOR LOCKS

A cylindrical door lock shall be provided on the roll up door(s). The door lock shall operate a rod mechanism located within the bottom rail of the door that extends into both side rails when locked.

Dr Strap, Pull Down

PULL DOWN STRAPS

Nylon straps shall be provided and installed on each roll up door . The straps shall be secured to the side wall of the interior compartment in a way that will allow the strap to automatically tuck inside the compartment when closed to prevent the strap from dangling and hindering closing of the door. The straps shall be black in color.

Drs, Roll-Up/Safe Step, Outside Cmpt, Specs, General

DOOR CONSTRUCTION

ROLL UP

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 interior 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.

The roll up door(s) shall be fabricated from aluminum extrusions and be manufactured and assembled in the United States.

The door slats shall be double-wall extrusions with dimensions of 1.366" high x .315" thick. The exterior surface shall be flat and the interior surface concave to deflect loose equipment to prevent the door from jamming. Each slat shall have interlocking end shoes to prevent the slat from moving side to side resulting in binding of the door. Each slat shall be separated by a co-extruded PVC and rubber inner seal to prevent metal to metal contact and minimize dirt and moisture from entering the compartment. The inner seal shall not be visible from the exterior to maintain a clean appearance of door. The slats shall have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects.

The track shall be a one (1) piece aluminum assembly that has an attaching flange and finishing flange incorporated into the design that facilitates installation and provides a finished look to the door without additional trim or caulking. A low profile side seal shall be utilized to maximize usable compartment space.

A drip rail designed to prevent water from dripping into the compartment shall be provided. The drip rail shall have a built in replaceable non-contacting seal to eliminate scratching of the surface of the door.

Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door and have "V" shaped double seal to prevent water and debris from entering the compartment. A two (2) inch wide finger pull shall be integrated into the bottom rail extrusion for easy one hand opening and closing. The door latch system shall be a full width one (1) piece lift bar that enables the user to operate with one hand.

A magnetic door ajar system shall be integrated in the lift bar handle and the lift bar handle retainer block to signal an open door.

The roll mechanism shall have a clip system that connects the curtain slats to the operator drum to allow for easy tension adjustment without tools. A four (4) inch diameter counterbalanced operator drum shall be incorporated to assist in lifting the door.

SAFE-STEP

To safely access equipment stored in the upper section of the compartments, heavy duty drop down door steps shall be provided at the bases of the high side equipment compartments ahead of and behind the rear wheels. The drop down door steps and the roll up doors of each compartment will operate independently of each other and shall have no exposed mechanical devices or hinges. **No Exception.**

An aluminum NFPA compliant treadplate stepping surface shall be provided full width of the compartment and no less than 16" in depth. Each shall withstand a static load of 800 pounds. Four (4) gas filled spring loaded door openers shall assist in opening and closing.

Finish, Safe Step, Mirror Stainless, Specs, General

SAFE STEP DOOR FINISH

When in the closed position, the safe step door exterior shall have a stainless steel mirrored finish surface.

Side Body Header, Painted, General

SIDE BODY HEADER

All high side compartment tops shall be NFPA approved non-slip treadplate with the side body header area above the compartment doors a smooth aluminum painted surface.

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

Sub-Frame, Alum, SA Pmpr/Tnkr , General

ALUMINUM 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. 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.

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 cross tubes 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.

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.

100" OAW, 26" Full Dpth Both Sides, HL/HR

BODY WIDTH

The overall width of the pumper body shall not exceed 100". The overall width across the rub rails shall be 101".

COMPARTMENT DEPTH

All left side compartments shall have an interior useable depth of not less than 26" the full height of each compartment with the specified doors in the closed position in order to provide the maximum amount of storage area.

All right side compartments shall have an interior useable depth of not less than 26" the full height of each compartment with the specified doors in the closed position in order to provide the maximum amount of storage area.

Bdy, General HD Extrd Alum, Pmpr/Tnkr , 160"

BODY LENGTH

The apparatus body shall be 160" long, reference the drawing for actual body length.

Cmpt Height, 79" High Left, High Side, RU Drs

COMPARTMENT HEIGHT

The left side full height body compartments shall be 63" high and equipped with a 63" high clear door opening.

The left side upper level compartment(s) shall be 32" high and equipped with a 32" high clear door opening.

Ahd Rr Whls-44" Full Ht Cmpt-Roll Up Outside Cmpt

LEFT FRONT COMPARTMENT

There shall be one (1) 44" wide full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

Abv Rr Whls-52" Sngl Cmpt, No Hyd Rack-RU Outside Cmpt

LEFT OVERWHEEL COMPARTMENT

There shall be one (1) 52" wide compartment above the rear wheels. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:

Bhd Rr Whls-48" Full Ht Cmpt - Roll Up Outside Cmpt

LEFT REAR COMPARTMENT

There shall be one (1) 48" wide full height compartment located behind the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:

Cmpt Height, 79" High Right, High Side, RU Drs

COMPARTMENT HEIGHT

The right side full height body compartments shall be 63" high and equipped with a 63" high clear door opening.

The right side upper level compartment(s) shall be 32" high and equipped with a 32" high clear door opening.
Ahd Rr Whls-44" Full Ht Compt-Roll Up Outside Compt

RIGHT FRONT COMPARTMENT

There shall be one (1) 44" wide full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:
Abv Rr Whls-52" Sngl Compt w/o Hyd Rack-RU Outside Compt

RIGHT OVERWHEEL COMPARTMENT

There shall be one (1) 52" wide compartment above the rear wheels. The compartment shall be equipped with a single natural finish roll up door.

The compartment shall be equipped with the following:
Bhd Rr Whls-48" Full Ht Compt-Roll Up Outside Compt

RIGHT REAR COMPARTMENT

There shall be one (1) 48" wide full height compartment located behind the rear wheels. The compartment shall be equipped with a full height single natural finish roll up door.

The compartment shall be equipped with the following:
Rr Center Low Compt - Roll Up/Trans

REAR CENTER COMPARTMENT

There shall be one (1) low compartment located at the rear of the apparatus. The compartment shall be equipped with a low natural finish roll up door. The compartment shall be open to the rear side compartments, providing a transverse compartment at the rear of the truck.

The compartment shall be equipped with the following:
Rr Bdy, Flat Back, General

REAR BODY CONFIGURATION

The rear of the apparatus body shall be of the flat back design.
Rr Step, General Bdy, Bolt-On, 16

REAR STEP - 16" BOLT-ON

An 16" deep step surface shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The tailboard shall be constructed of .188" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.

The maximum height of the step assembly shall be no more than 24" from the ground when the apparatus is in the loaded condition. A label shall be provided warning personnel that riding on the rear step while the apparatus is in motion is prohibited.

Rr Step, Grating, Up to 20" Deep

REAR STEP GRATING

The rear step shall be provided with a multi-directional aggressive gripping surface incorporated into the aluminum diamond plate rear step and shall comply with NFPA #1901 standards. The gripping surface shall be up to 20" wide.

Access Ladder, Rosenbauer EZ Climb, Left Rr

ROSENBAUER ACCESS LADDER

There shall be a swing out and down access ladder supplied and installed on the apparatus, for accessing the top of the apparatus. It shall be of an all aluminum design and shall incorporate treads six (6") inches deep and no more than eighteen (18") inches apart. The ground to the first step dimension, on level ground, shall be no more than eighteen (18") inches. When in the deployed position the ladder shall have an angle of approximately 75-degrees to facilitate ascending and descending the ladder. The ladder shall be retained in the stowed and deployed position by two (2) gas cylinders and shall not require the use of lathes to hold it in position.

Whl Well Panel, Alum, Pntd, Sngl Axle

WHEEL WELL LINER AND FENDERETTES

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth aluminum plate 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.

Fuel Fill Door, LH Whl Well Panel

FUEL FILL DOOR

A brushed aluminum fuel fill enclosure door shall be installed in the left side rear wheel well. A label indicating DIESEL FUEL ONLY shall be applied.

Whl Well Cmpt, Sngl SCBA Tube, Alum Dr

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

Whl Well Cmpt, Sngl SCBA Tube, Alum Dr

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

Whl Well Cmpt, Sngl SCBA Tube, Alum Dr

AIR CYLINDER COMPARTMENT IN WHEELWELL

One (1) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

Whl Well Cmpt, Ahd of Whls Left Side, General

WHEEL WELL COMPARTMENT LEFT SIDE AHEAD OF WHEELS

One (1) wheel well compartment shall be located on the left side in the rear wheel well panel ahead of the rear wheels of the type specified herein.

Whl Well Cmpt, Bhnd Whls Left Side, General

WHEEL WELL COMPARTMENT LEFT SIDE BEHIND WHEELS

One (1) wheel well compartment shall be located on the left side in the rear wheel well panel behind the rear wheels of the type specified herein.

Whl Well Cmpt, Ahd of Whls Right Side, General

WHEEL WELL COMPARTMENT RIGHT SIDE AHEAD OF WHEELS

One (1) wheel well compartment shall be located on the right side in the rear wheel well panel ahead of the rear wheels of the type specified herein.

Whl Well Cmpt, Bhnd Whls Right Side, General

WHEEL WELL COMPARTMENT RIGHT SIDE BEHIND WHEELS

One (1) wheel well compartment shall be located on the right side in the rear wheel well panel behind the rear wheels of the type specified herein.

Vents, Compts, Louvers (Ea)

COMPARTMENT LOUVER

A removable louvered ventilation shall be provided in the afore mentioned compartment.

Vents, Compts, Louvers (Ea)

COMPARTMENT LOUVER

A removable louvered ventilation shall be provided in the afore mentioned compartment.

Vents, Compts, Louvers (Ea)

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Vents, Compts, Louvers (Ea)

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Vents, Compts, Louvers (Ea)

COMPARTMENT LOUVER

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Vents, Compts, Louvers (Ea)

COMPARTMENT LOUVER

A removable louvered ventilation shall be provided in the afore mentioned compartment.
Shelf, Adjust, Alum 3/16"

ADJUSTABLE SHELF

One (1) adjustable shelf shall be constructed of .188" smooth aluminum plate with 1.5" formed vertical lip front & back. Shelf supports on each side to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) by use of 3/8" bolts and spring-loaded cam locks. If shelf is longer then 40" a reinforcement by aluminum gusset is to be placed full-length on bottom of shelf. Trim-Lok trim shall be installed on the front lip edge to afford protection to equipment and firefighter when loading/unloading.

Shelf, Adjust, Alum 3/16"

ADJUSTABLE SHELF

One (1) adjustable shelf shall be constructed of .188" smooth aluminum plate with 1.5" formed vertical lip front & back. Shelf supports on each side to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) by use of 3/8" bolts and spring-loaded cam locks. If shelf is longer then 40" a reinforcement by aluminum gusset is to be placed full-length on bottom of shelf. Trim-Lok trim shall be installed on the front lip edge to afford protection to equipment and firefighter when loading/unloading.

Shelf, Adjust, Alum 3/16"

ADJUSTABLE SHELF

One (1) adjustable shelf shall be constructed of .188" smooth aluminum plate with 1.5" formed vertical lip front & back. Shelf supports on each side to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) by use of 3/8" bolts and spring-loaded cam locks. If shelf is longer then 40" a reinforcement by aluminum gusset is to be placed full-length on bottom of shelf. Trim-Lok trim shall be installed on the front lip edge to afford protection to equipment and firefighter when loading/unloading.

Shelf, Adjust, Alum 3/16"

ADJUSTABLE SHELF

One (1) adjustable shelf shall be constructed of .188" smooth aluminum plate with 1.5" formed vertical lip front & back. Shelf supports on each side to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) by use of 3/8" bolts and spring-loaded cam locks. If shelf is longer then 40" a reinforcement by aluminum gusset is to be placed full-length on bottom of shelf. Trim-Lok trim shall be installed on the front lip edge to afford protection to equipment and firefighter when loading/unloading.

Shelf, Adjust, Alum 3/16"

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One (1) adjustable shelf shall be constructed of .188" smooth aluminum plate with 1.5" formed vertical lip front & back. Shelf supports on each side to be constructed of .188" aluminum and bolted to an aluminum extrusion

(mounted vertically) by use of 3/8" bolts and spring-loaded cam locks. If shelf is longer than 40" a reinforcement by aluminum gusset is to be placed full-length on bottom of shelf. Trim-Lok trim shall be installed on the front lip edge to afford protection to equipment and firefighter when loading/unloading.

Slide Tray, 500#, Alum 3/16" (1/4 Dpth) Full Extension

500# ROLLOUT TRAY

One (1) roll-out equipment tray shall be installed in a standard depth compartment. The tray with telescoping slides and roller bearings shall be rated to a maximum load of 500 lbs. Tray shall be of a closed-in design, formed of .188" smooth aluminum plate, fabricated with two (2) inch sides. Trim-Lok edge trim shall be installed on the front lip to afford protection to equipment and firefighter when loading/unloading. Reflective material measuring 1" x 6" shall be installed on the each front corner both on the face and side of tray for firefighter safety.

The tray unit shall roll out to full extension of the compartment, with latching mechanism to hold tray in both fully-extended and stored positions.

Slide Tray, 500#, Alum 3/16" (1/4 Dpth) Full Extension

500# ROLLOUT TRAY

One (1) roll-out equipment tray shall be installed in a standard depth compartment. The tray with telescoping slides and roller bearings shall be rated to a maximum load of 500 lbs. Tray shall be of a closed-in design, formed of .188" smooth aluminum plate, fabricated with two (2) inch sides. Trim-Lok edge trim shall be installed on the front lip to afford protection to equipment and firefighter when loading/unloading. Reflective material measuring 1" x 6" shall be installed on the each front corner both on the face and side of tray for firefighter safety.

The tray unit shall roll out to full extension of the compartment, with latching mechanism to hold tray in both fully-extended and stored positions.

Slide Tray, 500#, Alum 3/16" (1/4 Dpth) Full Extension

500# ROLLOUT TRAY

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The tray unit shall roll out to full extension of the compartment, with latching mechanism to hold tray in both fully-extended and stored positions.

Tool Board, Swing Out, 250#, 3/16" Alum

SWING-OUT ALUMINUM TOOL BOARD

One (1) swing-out vertical tool board assembly constructed of .188" smooth aluminum shall be provided. with locks for holding it in the "in" and "out" positions.

The tool board shall have a hand hole cut-out to accommodate a gloved hand.

Alum Peg Board on Rr Walls of Compts

ALUMINUM PEG BOARD ON BACK WALL OF COMPARTMENT

There shall be an aluminum pegboard panel bolted to the back wall of the compartment for the purpose of

mounting equipment. Spacers shall be used to create ½” space between the pegboard panel and the compartment wall.

The aluminum peg board panel shall be mounted in the following compartments:

Alum Peg Board on Rr Walls of Compts

ALUMINUM PEG BOARD ON BACK WALL OF COMPARTMENT

There shall be an aluminum pegboard panel bolted to the back wall of the compartment for the purpose of mounting equipment. Spacers shall be used to create ½” space between the pegboard panel and the compartment wall.

The aluminum peg board panel shall be mounted in the following compartments:

Turtle Tile, Shelves/Trays, Exterior LwrCmpts, (each)

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

Turtle Tile, Shelves/Trays, Exterior LwrCmpts, (each)

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

Turtle Tile, Shelves/Trays, Exterior LwrCmpts, (each)

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

Turtle Tile, Shelves/Trays, Exterior LwrCmpts, (each)

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

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Cmpt Lt, Wall, On-Scene, LED Track Lt, (2) Ea Cmpt

LED COMPARTMENT LIGHTS

Two (2) On-Scene vertically mounted roll-up compartment LED door lights shall be installed one each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks with the light actuation with the door opening.

The lights shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat build up.

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The lights shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat build up.

Cmpt Lt, Dr Swtch, Auto, Ea

COMPARTMENT LIGHT SWITCH

The exterior compartment light will be controlled by an automatic "On-Off" switch located on each compartment door.

Cmpt Lt, Dr Swtch, Auto, Ea

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Ladder Cmpt, Rr Center, Horz Thru Tank - <751 Gal - MN

SLIDE OUT HORIZONTAL LADDER COMPARTMENT

Ground ladders shall slide into a compartment accessed from the rear of the apparatus. The compartment shall fully enclose and house the specified ground ladders on individual scuff resistant brackets. There will be a stop in front of the compartment to prevent the ladders from sliding forward. An aluminum treadplate hinged door shall be provided and installed using a D-ring type latch. The door shall be provided with hollow core weatherstripping to seal compartment from the elements. The specified booster tank shall be constructed with a

cavity for the ladders to pass through.

Fldg Attic Ladder Mntg, In Ladder Storage-MN

FOLDING ATTIC LADDER MOUNTING

A mounting in the ground ladder storage shall be provided for the specified folding attic ladder.

Ladders, Ground, Provd'd By Bdy Bldr, General

LADDER SOURCE

New ground ladders shall be provided by the body builder.

Ladders, Fldg Attic, Provd'd By Bdy Bldr, General

FOLDING ATTIC LADDER SOURCE

New folding attic ladders shall be provided by the body builder.

Ladder, Roof, Duo-Safety, 14' Alum

ROOF LADDER

One (1) Duo Safety Model 775-A, 14 foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed all latest NFPA Standards.

Ladder, Ext, Duo-Safety, 24' Alum, 2 Sect

EXTENSION LADDER

One (1) Duo-Safety Model 900-A, 24 foot two (2) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

Ladder, Attic, Duo-Safety, 10' Alum, Fold

FOLDING LADDER

One (1) Duo Safety Model 585-A, 10 foot folding aluminum ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA Standards.

Pike Pole, 6' Fbgls, Round Hndl

PIKE POLE

Two (2) 6' pike pole with round handle shall be provided. The pike pole shall be of fiberglass construction.

Pike Pole, 10' Fbgls, Round Hndl

PIKE POLE

Two (2) 10' pike pole with round handle shall be provided. The pike pole shall be of fiberglass construction.

Pike Pole Mntg, In Ladder Compt, Ea

PIKE POLE MOUNTING BRACKET

Four (4) aluminum tube shall be provided for pike pole mounting. The tube shall have a 2-1/4" interior diameter and shall be mounted within the ladder compartment.

Pike Pole Provd'd By, Bdy Bldr

PIKE POLE SOURCE

The pike poles shall be provided by the body builder.

Suction Hose, Flex, Kocheck PVC, 6"x10'-MN

SUCTION HOSE

Two (2) 6.0" x 10 foot length of Kocheck PVC flexible suction hose shall be supplied. The suction hose shall have light weight couplings provided.

Suction Hose Cplgs, Alum, LH FM x RLM

HOSE COUPLINGS

Light weight aluminum couplings shall be provided on the suction hose. A long handle female swivel shall be provided on one end and a rocker lug male shall be provided for the other end.

Suction Hose Compt, Stacked in LH Hosebed

HARD SUCTION MOUNTING

Two (2) hard suction hose compartment shall be provided in the LH side of the hosebed. The design shall allow the hose(s) to be individually removed from the rear of the apparatus. The hard suction hose compartment shall have an aluminum treadplate door with a stainless steel hinge and a push to latch door catches.

Suction Hose Prov'd By, Bdy Bldr, General

SUCTION HOSE SOURCE

New suction hose shall be provided by the body builder.

== General Pmpr/Tnkr Common Body Parts - 328.000 03/31/08 =

Steps, Fldg, Rr Right Hand (3)

FOLDING STEP RIGHT REAR

Three (3) 8" square folding steps of chrome plated die cast aluminum shall be provided. The steps shall comply to NFPA #1901 non-slip standards and shall be installed on the rear right side of the body.

Step, Bldt, Treadplate, Rr Intermediate, 48"

REAR INTERMEDIATE STEP

An intermediate fixed step shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The intermediate step shall be constructed of .188" polished aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards and be approximately 8" deep x 48" wide.

Steps, Fldg, Frnt, Right Hand (3)

FOLDING STEP RIGHT SIDE FRONT

Three (3) 8" square folding steps of chrome plated die cast aluminum shall be provided. The steps shall comply to NFPA #1901 non-slip standards and shall be installed on the right side front compartment face.

Handrails, Rr Step, Vert, 60", Pair

HANDRAIL REAR STEP

Two (2) extruded aluminum non-slip handrails, approximately 60" in length, shall be provided and vertically mounted on the rear of the apparatus, one (1) on each side of the body.

Handrails, Pmpr, Below Hosebed, Horz, 60"

HANDRAIL BELOW HOSEBED

One (1) extruded aluminum non-slip handrail, approximately 60" in length, shall be provided and horizontally mounted below the hosebed on the rear of the apparatus.

Handrails, Pmpr, Top of Bdy Sides, Rr, 12", Pair

HANDRAIL TOP OF BODY SIDES

Two (2) extruded aluminum non-slip handrails, approximately 12" in length, shall be provided and mounted, one (1) each side at the top of the body sides, at the rear of the apparatus body.

Handrails, Pmpr, Top of Bdy Sides, Frnt, 12", Pair

HANDRAIL TOP OF BODY SIDES

Two (2) extruded aluminum non-slip handrails, approximately 12" in length, shall be provided and mounted,

one (1) each side at the top of the body sides, at the front of the apparatus body.

Bdy Trim, Frnt Bdy, Ht of Side Cmpts, Brshd S/S

FRONT BODY PROTECTION PANELS

Brushed stainless steel overlays and panels shall be installed on the front of the body from the lower edge to the top of the compartment doors. The material shall be bolted in place and sealed to prevent any moisture entry between the overlay and the body structure.

Bdy Trim, Rr Bdy, Smooth Alum for Chevron Stripe, General

REAR BODY PROTECTION PANELS

Smooth aluminum shall be installed on the rear of the body, to allow for the installation of a "Chevron" stripe on the rear. The "Chevron" style striping shall consist of 3M reflective red and amber striping installed and placed at a 45 degree angle in an "A" pattern pointing up towards the center upper portion of the rear face.

Rub Rails, Lwr Bdy, General Extrd Alum, Reflective Strip

EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel. Red and white reflective material shall be applied to the vertical surface of the "C" channel. There shall also be a bolt on aluminum corner casting on each rear corner to blend the rear tail board assembly with the side rub rails.

Fuel Tank, Removeable Access Panel

FUEL TANK ACCESS PANEL

There shall be a removable panel in the rear compartment, used to gain access to the fuel tank and fuel gauge-sending unit.

== General Pmpr/Tnkr-DC Electrical System - 328.000 03/31/0

Elecal, Base, Multi-Plex, Weldon V-MUX Bdy

LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The following specifications describe the low voltage electrical system on the specified rescue fire apparatus. The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA 1901 standards.

The apparatus shall have a Weldon V-MUX multiplexing system, to provide diagnostic capability. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The electrical system shall be pre-wired for computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics, troubleshooting, or program additions. There shall be a diagnostic display provided in the cab. The multiplexed system shall use twisted-pair shielded wire within the electrical system for noise reduction. The diagnostic display shall allow for fault and condition messages to be displayed. For superior system integrity, the networked system shall meet the following minimum requirement components:

1. Power management center
2. Load shedding power management
3. Solid-state circuitry
4. Switch input capability

5. Responsible for lighting device activation
6. Self-contained diagnostic indicators
7. Power distribution module
8. Diagnostic display for warning message indication
9. High Idle Function

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the protected circuit. Voltage drops in all wiring from the power source to the device shall not exceed 10 percent. The wiring, wiring harness and insulation shall be in conformance to applicable SAE J-1128 with GXL temperature properties and NFPA standards. All exposed wiring shall be protected in a loom with a minimum temperature rating of 289 degrees Fahrenheit. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

The wiring between the cab and body shall be joined using Deutsche type connectors or in an enclosed terminal junction panel. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system.

Any electrical junction or terminal boxes shall be weather resistant and located away from direct water spray. In addition, the main body junction panel shall house the automatically reset breakers and relays as required.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in an electrical junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified at least every two feet (2') by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of the applicable NFPA 1901 standards.

The electrical circuits shall be provided with low voltage over current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The over current protection shall be suitable for electrical equipment and shall be the automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of the maximum current for which the protected circuit. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system shall include the following:

- a) Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- b) The electrical wiring shall be harnessed or be placed in a protective loom.

- c) Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- d) Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate.
- e) A coil of wire must be provided behind each electrical appliance to allow them to be pulled away from the mounting area for inspection and service work.
- f) All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights added over the minimum requirement level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. Rocker type warning light switches shall be utilized. For ease of nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized. All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall be automatically activated per requirements of the NFPA 1901 standard. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

The apparatus shall be electrically tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with the delivery documentation per requirements of the NFPA 1901 standard. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a failed test.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, if an alarm sounds due to excessive battery discharge, as detected by the system requirements in the NFPA 1901 standard, or a system voltage of less than 11.7 volts dc

for a 12 volt system is present for more than 120 seconds, the test shall be considered a failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12 volt system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA REQUIRED DOCUMENTATION

The following documentation shall be provided on delivery of the apparatus:

a. Documentation of the electrical system performance tests required above.

b. A written load analysis, including:

1. The nameplate rating of the alternator.
2. The alternator rating under the conditions.
3. Each specified component load.

4. Individual intermittent loads.

Swch Panel, Chassis Supl'd

DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL

An electrical switch panel shall be designed and mounted in the cab dash area as furnished by the chassis manufacturer. All switches shall be provided with backlighted snap-in legend inserts.

SWITCHES

All emergency light switches shall be lighted, rocker style. Switches shall be internally lit when the switch circuit is in the on position. A plug-in identification label is to be provided and installed adjacent to each rocker switch with backlighting provided behind the label.

An internally lighted switch shall be provided and wired through a heavy-duty relay to activate power to the emergency lights. The emergency lights shall be activated by a single "MASTER SWITCH" on the electrical console.

Batteries, With Supl'd Chs

BATTERY SYSTEM

The chassis shall be provided with 12 volt Group 31, 650 CCA maintenance free batteries. The batteries shall be wired into the system to form a "single" battery system.

Battery Swch , Mstr Disconnect, w/Chassis

MASTER ELECTRIC SWITCH

One (1) chassis provided battery disconnect switch shall be located conveniently to the driver of the apparatus. The switch shall disconnect the 12 volt power supply from the battery system.

Battery Chrgr, Chs Supl'd
BATTERY CHARGER

A chassis supplied automatic battery charger shall be provided for the chassis battery system. The charger unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

Shore Power Inlet, KUSS Auto-Eject, W/Chassis

SHORE POWER RECEPTACLE

One (1) chassis supplied Kussmaul model #091-55-XX-120 20 amp "auto-eject" shore power receptacle shall be provided on the apparatus. The shore power plug shall be "ejected" when the chassis's engine starter is engaged. The receptacle shall be wired to any 120 volt A/C equipment that requires shore power. An aluminum enclosure shall be provided with the receptacle for protection from road dirt and damage. A hinged weatherproof cover shall be provided.

Air Horns, Supl'd w/Chassis

AIR HORNS

Two (2) air horns shall be supplied with the chassis.

Air Horn Cntrl, Supl'd w/Chassis

AIR HORN CONTROL

The air horn control shall be supplied with the chassis.

Dome Lt, Chassis Supl'd

INTERIOR CAB CEILING LIGHT

One (1) ceiling mounted dome light with on/off switch shall be supplied with the chassis.

Lt, Pump Cmpt, 12 Volt Incan With Swtch

PUMP ENCLOSURE LIGHTS

One (1) incandescent work light shall be provided in the pump enclosure. The control switch shall mounted on the light head.

Back Up Alarm, w/Chassis

BACK-UP ALARM

One (1) automatic electric back-up alarm shall be chassis supplied and be wired to the back-up light circuit, and mounted under the rear of the apparatus body.

Marker Lts, LED, DOT Requirements

MARKER LIGHTS

LED marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements.

License Plate Brkt, Chrome w/ Lt, Rr

LICENSE PLATE BRACKET

One (1) license plate bracket shall be provided at the rear bumper. The bracket shall have a light and shall be chrome plated.

Tail/Brake Lts, Whelen, LED, 4"x6"

TAIL LIGHTS

Two (2) Whelen LED tail/brake lights shall be provided. The rectangular 4"x6" light shall be red.

Turn Signals, Whelen, LED, 4"x6"

TURN SIGNALS

Two (2) Whelen turn signals shall be provided. The rectangular LED light shall be 4" x 6" in dimension.

Backup Lts, Whelen, Incan, 4"x6"

BACKUP LIGHTS

Two (2) Whelen Series 600, halogen backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 4" x 6" and the lens color shall be clear.

Tail Lt Bezel, 4 Lts

FOUR LIGHT BEZEL

Two (2) tail light cluster bezels shall be supplied. Each bezel shall be designed to hold the specified rear lights located at the lower rear corners of the body.

Ground Lts, Cab, Chassis Supl'd

CAB GROUND LIGHTS

The cab ground lights shall be supplied with the cab chassis.

Ground Lts, Mid Bdy, LED, Pair

MID BODY GROUND LIGHTS

Two (2) LED ground lights shall be installed under the mid-body of the apparatus. One (1) light shall be located on the driver's side and one (1) light located on the officer's side of the apparatus.

Ground Lts, Rr Step, LED, Pair

REAR STEP GROUND LIGHTS

Two (2) LED ground lights shall be installed under rear step of the apparatus.

Ground Lts, Behind Rr Whls, LED, Pair

REAR BODY GROUND LIGHTS

Two (2) LED ground lights shall be installed under the compartments located behind the rear wheels. One (1) light shall be located on the driver's side and one (1) light located on the officer's side of the apparatus.

Lt Swtch , Ground Lts w/ Park Brake

GROUND LIGHT SWITCH

The ground lights shall automatically activate when the parking brake is applied.

Lt Swtch , Ground Lts w/ Park Brake

GROUND LIGHT SWITCH

The ground lights shall automatically activate when the parking brake is applied.

Lt Swtch , Ground Lts w/ Park Brake

GROUND LIGHT SWITCH

The ground lights shall automatically activate when the parking brake is applied.

Step Lt, Fxd /Fldg Step, LED, Ea

STEP LIGHT

Two (2) LED step light with clear lens shall be installed.

Step Lt, Rr Step, LED, Ea

STEP LIGHT

Two (2) LED step light with clear lens shall be installed to illuminate the rear step of the apparatus body.

Lt Swtch , Step/Wlkwy Lts Wired Park Brake Swtch

STEP / WALKWAY LIGHT SWITCH

The step/walkway light switch shall be installed and wired to the parking brake.

Lt Swtch , Step/Wlkwy Lts Wired Park Brake Swtch

STEP / WALKWAY LIGHT SWITCH

The step/walkway light switch shall be installed and wired to the parking brake.

Scene Lt, Whelen, Halogen, 7"x9", 12 Deg Angle

SCENE LIGHT

Two (2) Whelen Series 900 halogen 7" x 9" scene light shall be installed. The light shall be installed with a 12 degree downward angle. A switch for the scene light(s) shall be provided in the cab.

Scene Lt, Whelen, Halogen, 7"x9", 12 Deg Angle

SCENE LIGHT

Two (2) Whelen Series 900 halogen 7" x 9" scene light shall be installed. The light shall be installed with a 12 degree downward angle. A switch for the scene light(s) shall be provided in the cab.

Scene Lt, Whelen, Halogen, 7"x9", 12 Deg Angle

SCENE LIGHT

Two (2) Whelen Series 900 halogen 7" x 9" scene light shall be installed. The light shall be installed with a 12 degree downward angle. A switch for the scene light(s) shall be provided in the cab.

Scene Lt Lctn, Left Side Of Bdy

SCENE LIGHT LOCATION

One (1) scene light shall be located on the left side of the apparatus body.

Scene Lt Lctn, Right Side Of Bdy

SCENE LIGHT LOCATION

One (1) scene light shall be located on the right side of the apparatus body.

Scene Lt Lctn, Rr Of Bdy

SCENE LIGHT LOCATION

One (1) scene light shall be located on the rear of the apparatus body.

Scene Lt Swtch , Left Scene Lts, Cab

SCENE LIGHT SWITCH

One (1) scene light switch shall be installed on the cab dash to activate left side scene lights upon engagement.

Scene Lt Swtch , Right Scene Lts, Cab

SCENE LIGHT SWITCH

One (1) scene light switch shall be installed on the cab dash to activate right side scene lights upon engagement.

Scene Lt Swtch , Rr Scene Lts, Auto w/ Reverse

SCENE LIGHT SWITCH

The rear scene lights shall activate automatically upon placing the transmission into reverse.

Dr Open/Hazard Wrn Lt, Flashing Red Lens

DOOR OPEN/HAZARD WARNING LIGHT

One (1) red flashing, warning light shall be provided and installed in the driver's compartment to indicate an open passenger or apparatus compartment door. The warning light shall also be attached to folding equipment racks and light towers as specified. The light shall be a flashing rectangular incandescent marker light with a red lens and shall be properly marked and identified.

Siren, Elect, Supl'd w/Chassis

ELECTRIC SIREN

One (1) electronic siren shall be supplied with the chassis.

Spkr, Chassis Supl'd

SPEAKER

One (1) siren speaker shall be supplied with the chassis.

EMERGENCY LIGHTING PACKAGES

Lt Bar, Whelen, Ultra Freedom, #FN72QLED, LED, 72"

LIGHTBAR

One (1) Whelen Ultra Freedom Model #FN72QLED LED light bar shall be installed. The lightbar shall be 72" in length. The configuration and lens color shall be red / clear / red. The light bar shall be installed on the apparatus cab roof.

Bezels, Chrome, Wrn Lts (1 pair)

CHROME BEZELS

There shall be chrome bezels supplied and installed on the warning lights.

Bezels, Chrome, Wrn Lts (1 pair)

CHROME BEZELS

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Bezels, Chrome, Wrn Lts (1 pair)

CHROME BEZELS

There shall be chrome bezels supplied and installed on the warning lights.

Bezels, Chrome, Wrn Lts (1 pair)

CHROME BEZELS

There shall be chrome bezels supplied and installed on the warning lights.

Wrn Lts, Low Frnt, Chs Supl'd

LOWER FRONT WARNING LIGHTS

Two (2) warning lights shall be supplied with the chassis.

Side Facing Front LwrLts, With Chs

INTERSECTION WARNING LIGHTS

Two (2) intersection warning lights shall be supplied with the chassis.

Wrn Lts, Whelen, Low Rr Side (2) #600 SLED

LOWER REAR SIDE WARNING LIGHTS

One (1) pair of Whelen model #600 clear lens, red Super LED warning lights shall be installed, one each side of the apparatus body, towards the rear of the body. The dimensions of the lights shall be 4" x 6".

Wrn Lts, Whelen, Upper Side Front (2) #900 S LED

UPPER SIDE FRONT WARNING LIGHTS

One (1) pair of Whelen model #900 Clear Lens, Red Super LED warning lights shall be installed, on the upper portion of the body side, towards the front. The dimensions of the lights shall be 7" x 9".

Wrn Lts, Whelen, Upper Side Rr (2) #900 S LED

UPPER SIDE REAR WARNING LIGHTS

One (1) pair of Whelen model #900 Clear Lens, Red Super LED warning lights shall be installed, one each side on the upper portion of the body side, towards the rear of the body. The dimensions of the lights shall be 7" x 9".

Wrn Lts, Whelen, Upper Rr (2) #900 S LED

UPPER REAR WARNING LIGHTS

Two (2) pair of Whelen model #900 Uppers above scene light to be Clear Lens, Red Super LED warning lights, Uppers below scene light to be Clear Lens, Amber Super LED warning lights shall be installed, one each side on the upper rear of the apparatus body. The dimensions of the lights shall be 7" x 9". Flash pattern of Uppers to be diagonal; Red/Amber Amber/Red.

Wrn Lts, Whelen, Low Rr (2) #600 S-LED

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model #600 clear lens, red Super LED warning lights shall be installed, one each side on the lower rear of the apparatus body. The dimensions of the lights shall be 4" x 6".

Traffic Arrow Lt, Whelen, 46" LED, TAL85

TRAFFIC ARROW LIGHT

One (1) Whelen Model #TAL85 Traffic Advisor shall be installed. The light shall be equipped with eight (8) LED lights measuring 46" in length. The unit shall be mounted at the rear of the apparatus body. The Traffic Advisor control head shall be mounted inside the cab and be accessible by the driver and officer.

Traffic Arrow Lt Mntg, Surface Mt, Below Rr Step

TRAFFIC ARROW LIGHT MOUNTING

The traffic arrow light shall be surface mounted below the rear step of the apparatus body.

== General Pmpr/Tnkr-AC Electrical System - 328.000 03/31/0

Gnrtr, Onan Hyd, 10KW, 120/240V, 1 PH

GENERATOR

One (1)10 kW PTO driven hydraulically powered generator system shall be supplied and installed. The generator shall be an Onan model CMHG. The generator system shall be capable of producing the nominal output power of 10 kW, 120/240V, 60 Hz. The generator shall be installed per the manufacturer recommendations and shall be capable of supplying full power at engine high idle. The generator shall be capable of being switched on or off at any time, with or without electrical loads applied. The generator field and armature windings shall be of copper magnet wire, coated with class 200 film insulation. The generator alternator shall be capable of accepting a zero power factor load of 200% rated kVA and recover to 90% of rated voltage within 1/2 second.

A Chelsea, Muncie or equal transmission PTO adapter shall be used. The gear ratio of the PTO shall be selected to provide required generator pump speeds with respect to engine speeds. The hydraulic pump can be directly mounted to the PTO using standard SAE flange or the pump can be remote mounted utilizing a driveshaft. Direct mount pumps on the PTO shall have supports per the manufacturer instructions to avoid stress damage to the PTO mounting face. Remotely mounted pumps shall have adequately sized and configured mounting brackets, drive shafts and guarding to prevent entangling injuries.

The compartment or installation location for the generator module shall be made per the manufacturer recommendations. Proper cooling air control, service panel access and exhaust air venting shall be demonstrated. The compartment or location shall have an under tray and adequate structure to support the generator module.

The hydraulic system reservoir shall be mounted at least two inches above the pump and shall have access for fluid filling, draining and viewing the sight glass fluid level indicator. Clearance of at least 10" above the reservoir shall be provided for hydraulic fluid filter service. The fluid shall be Dextron III hydraulic fluid.

All connecting hydraulic hoses and fittings shall be of the size and pressure rating specified by the manufacturer. The hoses shall be adequately protected from chafing or abrasion during operation.

The generator shall be capable of being switched on or off by one or multiple switches as required. The on/off control switch (s) shall be mounted in an area convenient for the driver and/or pump operator as required.

A display meter consisting of 4 numeric LED displays shall be used. The meter shall simultaneously display system voltage, frequency and amperage in each of the two 120V legs. The display shall be mounted in an area clear for operator observation and near the on/off switch.

Data Label

A permanent data label indicating the following information shall be applied:

- 1) Rated voltage
- 2) Phase
- 3) Frequency
- 4) Amperage
- 5) Continuous Watts
- 6) Peak Watts

Gnrtr, Hyd, Engage By PTO Swch in Cab

GENERATOR STARTUP

An activation switch for the hydraulic generator shall be installed in the apparatus cab.

Gnrtr Mtg, Over Pump Enclsr

GENERATOR MOUNTING LOCATION

The generator shall be installed over the fire pump enclosure.

Gnrtr Install, Fxd , Hyd Driven, Base Specs

ELECTRICAL SYSTEM INSTALLATION

The line voltage electrical system shall comply with the applicable NFPA standards and also comply with the applicable sections of the National Electric Code #70 standards. Line voltage carrying equipment down stream of the power source shall be "listed" (where available) and installed in accordance with manufacturers instructions. The electrical equipment installed shall be suitable for intended use and type locations (wet, dry, or underbody and chassis).

The grounding and bonding shall comply to applicable sections of NFPA standards. The chassis frame rail, body sheet metal, and cab sheet metal shall be properly bonded per NFPA schematic. The bonding copper conductor shall be rated at 115 % of current rating of power source.

Over-Current Protection Panel

Manually re-setable over current devices shall be installed to protect the line voltage electrical system components. A main over current protection device shall be provided. The device shall be either incorporated in the power source or connected to the power source by a power supply assembly. The size of the main over current protection device shall not exceed 100 percent of the nameplate amperage rating on the power source

specification label or the rating of the next larger available size over current protection device where so recommended by the power source manufacturer.

The conductor used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches in length. If over this distance, a separate master disconnect shall be installed at the generator area.

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with NEC. Each over current protection device shall be marked to identify the function of the circuit it protects. The circuit breaker panel and instruments shall be located so that all circuit breakers are readily visible under normal operating conditions. The panel shall be readily visible and located so that there is unimpeded access to the panel board controls.

Hydraulic Components

A hydraulic system filter, fluid level gauge, and fluid temperature gauge shall be provided as integral components within the hydraulic reservoir. The reservoir shall be easily accessible to allow filter changes and fluid level checks. There shall be at least 10 inches of clear space above the reservoir to allow removal of the filter element. Interconnecting hoses and fittings shall meet the generator system manufacturer's recommendations for pressure, size, and type of hose used. Where any hydraulic hose contacts other surfaces, the hose shall be protected from chafing. The hydraulic pump shall be driven by a power take-off mounted to the chassis automatic transmission.

Control Panel

The panel shall include the following:

- a) Green indicator light to indicate PTO engagement. The light shall be labeled "GENERATOR ENGAGED."
- b) Red indicator light to indicate chassis transmission fluid overheat. The light shall be labeled "TRANSMISSION OVERHEAT."
- c) Main circuit breaker panel with "main" breaker and individual line breakers.
- d) All breakers, outlets, switches, and receptacles shall be labeled per requirements of applicable NFPA standards.
- e) The generator shall be capable of producing full rated power throughout the entire RPM range of the engine.

Permanent data plaque indicating the following information:

- a) Rated voltage
- b) Phase
- c) Frequency
- d) Amperage
- e) Continuous power in watts
- f) Engine RPM

Instruction Label

An instruction label indicating essential generator operating instructions, including power-up and power-down sequence shall be permanently attached at or near the operator's panel.

Gnrr Testing, Only Required For Units >8KW

ELECTRICAL SYSTEM TESTING

All apparatus installed wiring and associated equipment shall be tested by the apparatus manufacturer in compliance to applicable NFPA standards. The apparatus manufacturer shall test the generator system at the continuous duty rating for a minimum of two (2) hours.

If the apparatus is equipped with a fire pump, both the generator and fire pump shall be operated simultaneously at full pump capacity and generator at "continuous rating" for two (2) hours. Failure of either the generator system or fire pump system during testing will require retesting of both components simultaneously.

The conditions specified shall be recorded at least every 1/2 hour during the test. The results of these tests shall be submitted to the purchaser upon delivery.

Each outlet shall be tested individually to device rating.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Circuit Breaker Box, 9 to 15KW, 1 PH

CIRCUIT BREAKER BOX

One (1) circuit breaker box for single phase voltage equipment shall be provided capable of holding twelve (12) breakers.

Gnrtr Breaker Lctn, Left Front Side Compt

CIRCUIT BREAKER BOX LOCATION

The circuit breaker box shall be installed on the wall towards the front of the apparatus in the left front body compartment.

Gnrtr Instrmnt Panel Lctn, Pump Panel

GENERATOR INSTRUMENT PANEL LOCATION

The instrument panel for the generator shall be installed on the pump operator's panel.

Gnrtr Wiring, Combo, SO & THHN

LINE VOLTAGE WIRING INSTALLATION

Line voltage wiring in the vehicle shall be through Carflex, or equal flexible moisture resistant reinforced conduit, with proper seal-tight connectors and hardware. Type THHN or Type SO stranded copper conductors with 600-volt insulation rated for at least 194 degrees shall be installed in the conduit. All electrical junction boxes shall conform to the National Electric Code and be fully accessible for service and not hidden in walls or ceiling.

Electrical conduit shall be supported within 6 inches of any junction box and at a minimum of every 24 inches of run. Supports shall be made of corrosion protected metal and that does not cut or abrade the conduit and shall be mechanically fastened to the vehicle.

Electrical conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring and shall be separated by a minimum of 12 inches from exhaust piping or properly shielded and separated from fuel lines by a minimum of 6 inches distance.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Use of wire nuts or insulation displacement and insulation piercing connectors shall be avoided.

Rcptcl, 120V, 20 Amp, L5-20, Twst Lck

120V ELECTRIC RECEPTACLE -- TWIST LOCK

One (1) 120-volt 20 amp twist lock (NEMA L5-20) receptacle with spring loaded weatherproof cover shall be provided with wiring to the circuit breaker panel.

Rcptcl, 120V, 20 Amp, L5-20, Twst Lck

120V ELECTRIC RECEPTACLE -- TWIST LOCK

One (1) 120-volt 20 amp twist lock (NEMA L5-20) receptacle with spring loaded weatherproof cover shall be provided with wiring to the circuit breaker panel.

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Rcptcl, 120V, 20 Amp, L5-20, Twst Lck

120V ELECTRIC RECEPTACLE -- TWIST LOCK

One (1) 120-volt 20 amp twist lock (NEMA L5-20) receptacle with spring loaded weatherproof cover shall be provided with wiring to the circuit breaker panel.

Shore Power Inlet, Supply Gen Panel, 10 Amp, 120V

LINE VOLTAGE SHORE POWER INLET

One (1) receptacle for a shore power inlet line shall be provided to supply the generator control panel for use when the generator is off line. A 30-amp, 120-volt shoreline receptacle shall be installed near the generator controls.

An automatic transfer switch shall be installed that allows components normally powered by the 120-volt shore power connection to be automatically powered by the on board generator upon startup of the generator.

Rcptcl Lctn, Left Side, Whl Well, Ea

ELECTRIC RECEPTACLE LOCATION -- LEFT SIDE WHEEL WELL

The electric receptacle shall be located near the left side wheel well.

Rcptcl Lctn, Right Side, Whl Well, Ea

ELECTRIC RECEPTACLE LOCATION -- RIGHT SIDE WHEEL WELL

The electric receptacle shall be located near the right side wheel well.

Rcptcl Lctn, Left Rr Face, Exterior Bdy, Ea

ELECTRIC RECEPTACLE LOCATION -- REAR EXTERIOR BODY

The electric receptacle shall be located on the exterior left rear face of the body.

Rcptcl Lctn, Right Rr Face, Exterior Bdy, Ea

ELECTRIC RECEPTACLE LOCATION -- REAR EXTERIOR BODY

The electric receptacle shall be located on the exterior right rear face of the body.

Cable Reel, Hannay ECR1600, Elec Rwnd, 120V 50A 3 Wire BLK

ELECTRIC CABLE REEL

One (1) Hannay ECR-1600 series electric cable reel with an electric rewind shall be installed on the vehicle. The reel shall be designed for use with 120 volt, three (3) wire cable. The duty rating of the cable reel shall be for continuous usage. The reel shall be installed so that it is easily accessible for cord access and maintenance. A

12-volt motor controlled by a push button switch located in a convenient position and properly labeled shall perform the electric rewind function.

The installation of the cable reel shall meet applicable sections of the NFPA standards.

Reel Capacity

The reel shall be sized to hold 110 percent of the capacity needed for the specified cable length. The wire size shall be in accordance with the National Electric Code.

Labeling

An information label shall be installed in a location visible adjacent to any permanently connected reel with the following data:

1. Voltage
2. Phase
3. Current type
4. Current rating
5. Total cable length

Electrical Supply Wiring To Reel

The wiring shall end in a sealed conduit box at the reel with mechanical connectors to allow removal of the reel. Appropriately, sized wire and circuit breakers shall be utilized.

Cable Reel Lctn, Right Side, Bhnd Rr Whls Cmpt, Upper

ELECTRIC CABLE REEL - RIGHT SIDE BEHIND REAR WHEELS CMPT

The electric cable reel shall be installed in the upper right side body compartment behind the rear wheels.

Cable, Elec, 120V, 200' 10/3 Blk

ELECTRIC CABLE - 120 VOLT

A two hundred foot (200') length of 10/3 black electric cable shall be installed with specified plugs. The cable shall be type SEO-WA with a 20 amp, 120 volt rating.

Cable Rcptcl, 120V, 3-Prong, Twst Lck

CABLE ELECTRIC RECEPTACLE - 120 VOLT TWIST LOCK

The electric cable shall be configured with a 120-volt, three prong, twist lock female receptacle.

Roller Assy, Cable Reel, 4-Way, Poly Rollers

ELECTRIC REEL CABLE ROLLER

One (1) four-sided nylon roller unit for the electric cable shall be installed on specified reels. The roller unit shall be mounted in the specified location to permit the cable to feed directly off the reel.

Jct Box, AKR/GFE, (4)-120V L5-20 Twst Lck

JUNCTION BOX

One (1) Akron GFE electrical junction box with 12" pigtail and plug shall be provided. The unit shall have an integral pilot light to indicate electrical current.

The unit shall be equipped with four (4) 120 volt 20 amp NEMA (L5-20) twist lock receptacles, each with a hinged, weatherproof cover.

Jct Box, Holder, Brushed Alum

JUNCTION BOX STORAGE BRACKET

One (1) aluminum storage bracket designed to hold an electric junction box shall be supplied. The holder shall be mounted in the same compartment as the specified cable reel.

Fldlgt, FRC, Opti, 750W-120V, 4" Recess in Bdy

RECESSED 750 WATT FLOODLIGHT

Two (2) Fire Research Optimum model OPA250-S75 recessed light shall be installed. The housing shall incorporate internal heat-dissipating fins and have cutout dimensions not to exceed 4 1/8" deep by 5 3/4" high by 9 5/8" wide. The lamphead shall protrude no more than 1 1/2" from the housing flange. Wiring shall extend from the bottom of the recessed housing.

The lamphead shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamphead shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamphead shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. Lamphead and brackets shall be powder coated white.

Fldlt Lctn, Abv Bdy Cmpts, Fxd, Both Sides

FLOODLIGHT LOCATION - BODY SIDE

The mounting location of the floodlights shall be above the side apparatus body compartments on both sides.

Fldlt Cntrl Swch, Cab Lts

FLOODLIGHT SWITCH - CAB FLOODLIGHTS

An on/off switch for the cab mounted floodlights shall be provided.

Fldlt Cntrl Swch, Left Side Bdy Lts

FLOODLIGHT SWITCH - LEFT SIDE BODY FLOODLIGHTS

An on/off switch for the left side, body mounted floodlights shall be provided.

Fldlt Cntrl Swch, Right Side Bdy Lts

FLOODLIGHT SWITCH - RIGHT SIDE BODY FLOODLIGHTS

An on/off switch for the right side, body mounted floodlights shall be provided.

== General Pmpr/Tnkr-Equipment Systems - 328.000 03/31/08 =

== General SA Pmpr/Tnkr - Pnt/Ltr/Str - 328.000 03/31/08 ==

Bdy Paint, Pmpr/Tnkr, Sngl Color - MN

BODY PAINT PROCESS

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

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

All aluminum parts shall be bolted to the body using stainless steel fasteners. Zinc or Cadmium plated fasteners are not acceptable. All bright metal fittings, if unavailable in stainless steel shall be heavily chrome plated. Iron fittings shall be copper plated prior to chrome plating.

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

The body and all parts shall be thoroughly washed with a grease cutting solvent (PPG DX330) prior to any sanding. After the body has been sanded and the weld marks and minor imperfections are filled and sanded, the body shall be washed again with (PPG DX330) to remove any contaminants on the surface.

The first coating to be applied is a pre-treat self etching primer (PPG DX1787) (.5 to 1.0 dry film build) for maximum adhesion to the body material. The next two to four coats (depending on need) shall be an acrylic urethane primer surfacer (PPG K38). The film build shall be 4-6 mils when dry. The primer surfacer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure maximum gloss of the paint. The last step is the application of at least three coats of PPG Concept acrylic urethane two-component color (single stage). The film build being 2-3 mils dry. The single stage acrylic urethane, when mixed with component (PPG DCX61) catalyst shall provide a UV barrier to prevent fading and chalking.

All products and technicians are certified by PPG every two (2) years.

Compt Finish, Spatter Coat, Up to 8 Cmpts - MN

INTERIOR COMPARTMENT FINISH

Eight (8) apparatus side compartment interiors are to be painted with a spatter finish material. The compartments shall be cleaned with a grease remover, and then the surface sanded and prepared for painting. The compartment shall be provided with two (2) coats of white epoxy. The compartments are then coated with a splatter paint top coat.

Whl Finish, By Chassis Manufacturer

WHEEL FINISH

The front and rear wheel finish shall be by the chassis manufacturer.

Bdy Paint, Touch Up, 2 oz. Bttl, One Color

TOUCH-UP PAINT

One (1) two (2) ounce bottle of touch-up paint shall be furnished with the completed truck at final delivery.

Painting, Handrails, Ylw

HANDRAIL PAINTING

The handrails shall be painted a bright safety yellow.

Undercoating, Cab, 4 Door, Cstm

UNDERCOATING

The cab fenders and entire underside of the four-door custom chassis cab is to be cleaned and properly prepared for application of a sprayed on automotive type undercoating for added corrosion resistance. Undercoating is to be a solvent based, rubberized coating, black in color.

Undercoating, Bdy, Sngl Axle

UNDERCOATING

The entire underside of the single axle apparatus body is to be cleaned and properly prepared for application of a sprayed on automotive type undercoating for added corrosion resistance. Undercoating is to be a solvent based, rubberized coating, black in color.

Lettering Supl'd by Dealer

LETTERING

The dealer shall supply the apparatus lettering.

Stripe, Reflective, Supl'd by Dealer

REFLECTIVE STRIPING

The dealer shall supply reflective striping for the apparatus in compliance to applicable NFPA standards.

Stripe, Reflective, Chevron Pattern Frnt Bmpr

CHEVRON STRIPING

The front bumper shall have 3M reflective red and amber striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

Stripe, Reflective, Chevron Pattern Entire Rr

CHEVRON STRIPING

The entire rear portion of the body shall have 3M reflective red and amber striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

Reflective Stripe Material, White

COLOR OF STRIPING MATERIAL

The color of the 3M brand striping material shall be white.

== General Pmpr/Tnkr - Loose Equipment - 328.000 03/31/08 =

Equipment Loading Allowance of 2000#

EQUIPMENT PAYLOAD WEIGHT ALLOWANCE

In compliance with NFPA #1901 standards, the apparatus shall be engineered to provide an allowance of 2000 pounds of fire department provided loose equipment.

Whl Chocks Pair Zico #SAC-44 Fldg w/ Mts

WHEEL CHOCKS WITH MOUNTS

A pair of Zico Model SAC-44 Quic-Chok folding wheel chocks shall be provided and mounted under the apparatus runningboards in model SQCH-44H horizontal mounting brackets.