

# Mayer Engine Body spec.

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## **INTENT OF SPECIFICATIONS**

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified with a view of obtaining the best results and the most acceptable apparatus for service in the Department. These specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor. The manufacturer shall provide loose equipment only when specified by the customer. Otherwise, in accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of twenty-five years.

Each bidder shall provide satisfactory evidence of their ability to construct the apparatus specified, and shall state the location of the factory where the apparatus is to be built. They shall also show that they are in a position to render prompt service and to furnish replacements parts.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments serving populations of over 250,000 in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Each bid shall be accompanied by a detailed set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed, and to which the apparatus being furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

## **QUALITY AND WORKMANSHIP**

The design of the Apparatus shall embody the latest approved automotive engineering practices. The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points:

Accessibility of the various units, which require periodic maintenance; and ease of operation (including both pumping and driving); and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under Performance tests and

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requirements. Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair.

All steel welding shall follow (American Welding Society) requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow (American Welding Society) requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type structure made from aluminum structural alloys. All sheet metal welding shall follow (American Welding Society) AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow (American Society of Mechanical Engineers) ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, (American Welding Society) AWS standards A5.20-E70T1. The manufacturer shall be required to have an American Welding Society certified welding inspector in plant during testing operations within working hours to monitor weld quality.

Employees classified as welders shall be tested and certified to meet American Welding Society and American Society of Mechanical Engineers welding codes.

## **DELIVERY**

To insure proper break-in of all components while still under warranty, the apparatus **shall be delivered under its own power**, rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

## **PERFORMANCE TESTS AND REQUIREMENTS**

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall provide a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

- A. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- B. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).

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- C. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

The apparatus shall be tested and approved by the Underwriter's Laboratories Incorporated in accordance with their standard practices for pumping engines. The contractor shall provide copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered. The vendor, at their expense, shall have the Underwriter's Laboratories Incorporated conduct the tests required by the Underwriter Laboratories Incorporated (Guide for the Certification of Fire Department Pumper subject 822 dated 1995 or latest). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 / latest revision.)

## **INFORMATION REQUIRED**

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

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

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

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

## **LIABILITY**

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The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

## **BID SPECIFICATION REQUIREMENTS**

Item compliance shall be indicated in the "Yes/No" column of each item by all Bidders. Bidders shall submit a detailed proposal. Each bidder shall submit their proposals in the same arrangement as these specifications for ease of evaluation, comparison, and examination of compliance. Bid communications by letter only and/or written on a company letterhead, shall not be acceptable.

## **EXCEPTIONS TO SPECIFICATIONS**

Exceptions shall be allowed if they are equal to or superior to that as specified and providing they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list shall refer to specification page number and paragraph.

**Proposals taking total exception to specifications or total exception to certain parts of the specifications will not be acceptable.** The Apparatus shall be inspected upon completion for compliance with specifications. Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications. Failure to provide this information shall be cause to reject the proposal as being non-responsive. **An exception to these requirements shall not be tolerated.**

## **PURCHASER'S RIGHTS**

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

## **GENERAL CONSTRUCTION**

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Agency.

The apparatus shall be designed so that the operator could perform all recommended daily maintenance checks easily without the need for hand tools. Apparatus components that interfere

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with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus. The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

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

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

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

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

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## **BID/PROPOSAL DRAWINGS**

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24" x 36"). Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable. Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

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## **APPROVAL/PRE-CON DRAWINGS**

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After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use of pre-construction conference. The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus. The Customer will sign the final approval drawing.

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## **BID SECURITY**

Each bidder must submit a bid bond or a cashier's check with his or her proposal for the amount of ten percent (10%) of the bid price of the proposal submitted.

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## **PERFORMANCE BOND**

A 100% Performance Bond shall be supplied within thirty days of bid award. The signatures of both buyer and bidder on the contract shall construe awarding of the bid. The prime apparatus builder shall provide the performance bond. Any bonds supplied by the dealer or representative shall not be acceptable.

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## **SINGLE SOURCE MANUFACTURER**

Bids shall only be accepted from a single source apparatus manufacturer.

The definition of single source manufacturer is company that designs and manufactures their products utilizing an approach that includes complete product integration, including the apparatus chassis, cab, and body modules being constructed, assembled, and tested on company premises only.

Warranties qualified to the chassis and body design construction (excluding vender component warranties such as engine, axles, transmission, and pumps, etc.) will be from a single source manufacturer and not separated between manufacturers (i.e. body and chassis). The bidder shall provide evidence of maintaining compliance to this requirement.

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## **FINITE ELEMENT ANALYSIS AND TESTING**

Finite Element Analysis has been utilized in evaluating and engineering the critical areas of the

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apparatus body. Prototype bodies have been subjected to rigorous testing over varied terrains simulating different environmental conditions. The purpose of such complex engineering methods of analysis shall be to ensure the longevity of the design by analyzing stress levels throughout the body and incorporating the structural supports wherever necessary.

There shall be a minimum of 3 different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus. This is in addition to the static stress analysis. The analysis shall have included the weight of the structure plus an estimate of all the components that exist on a fully loaded apparatus (i.e. Tank, water, hose load, equipment in compartments, etc.).

Analysis shall also have been conducted on the mounting system for the apparatus body and pump house. Detailed colored drawings shall be supplied with the bidder's proposal.

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## **SUPPLIED INFORMATION & EXTRAS**

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

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

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

Owner name and address;

Apparatus manufacturer, model, and serial number;

Chassis make, model, and serial number;

GAWR of front and rear axles;

Front tire size and total rated capacity in pounds;

Rear tire size and total rated capacity in pounds;

Chassis weight distribution in pounds with water (if applicable) and manufacturer mounted equipment (front and rear)

Engine make, model, serial number, rated horsepower, related speed and no load governed speed;

Type of fuel and fuel tank capacity;

Electrical system voltage and alternator output in amps;

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Battery make and model, capacity in CCA:

Paint numbers;

Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose):

Written load analysis and results of the electrical system performance tests;

Transmission make, model, and type;

Pump to drive through the transmission (yes or no);

Engine to pump gear ratio and transmission gear ratio used;

Pump make and model, rated capacity in gallons per minute, serial number, and number of stages;

Pump manufacturer's certification of suction capability;

Pump manufacturer's certification of hydrostatic test;

Pump manufacturer's certification of inspection and test for the fire pump;

Copy of the apparatus manufacturer's approval for stationary pumping applications;

Pump transmission make, model and serial number;

Priming device type;

Type of pump pressure control system;

The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed;

Certification of water tank capacity;

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## **COLOR CODED ELECTRICAL SCHEMATICS**

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.

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## **LIABILITY INSURANCE COVERAGE**

In order to protect the department and its personnel, the bidder shall show proof that it has no less than \$30 million in liability insurance in force. A certificate of coverage shall be included in the bid package. Failure to carry liability insurance of at least this amount or failure to include proof of coverage shall be cause to reject the bidder's proposal.

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## **DEMONSTRATOR OR STOCK UNITS**



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These specifications were carefully researched and developed by the department to provide a unit to serve our unique requirements. Because of this, it is not desired that stock or demonstrator units be bid. Bidders are to bid units meeting our prepared specification only. Proposals for stock or demonstrator units will be rejected as being non-responsive.

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## **GENERAL WARRANTY**

A warranty shall be offered for each new fire apparatus manufactured for a period of Two (2) years from the date of delivery, except for the commercial chassis and certain other components as noted in the next paragraph.

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

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities. Please see the official warranty document in the appendix (attached) for specific details.

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## **STRUCTURAL BODY WARRANTY**

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

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## **PAINT WARRANTY**

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

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## **PUMP WARRANTY**

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years from the date placed into service.

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Please see the official warranty document in the appendix (attached) for specific details.

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## **PLUMBING WARRANTY**

A Stainless Steel Plumbing/Piping warranty shall be offered for each new fire apparatus manufactured for a period of ten (10) years from the date of delivery.

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## **TANK WARRANTY**

A lifetime tank warranty will be provided by the tank manufacturer, Pro Poly.

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## **MULTI-PLEXED ELECTRICAL WARRANTY**

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

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## **PUMP CERTIFICATION AND TESTING**

The apparatus upon completion will be tested and certified by Underwriters Laboratories, Inc. The certification tests will follow the guide lines outlined in NFPA 1901 "Standard for Fire Apparatus".

There shall be multiple tests performed by the contractor and Underwriter's Laboratories when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery. The inspection services of Underwriters Laboratories are available to all bidders on an equal basis; therefore, no third party certification of testing results shall be acceptable.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of

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250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gage pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

## **Pumping Test:**

The test site shall be adjacent to a supply of clear water at least 4 ft. (1.2 m) deep, with the water level not more than 10 ft. (3 m) below the center of the pump intake, and close enough to allow

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the suction strainer to be submerged at least 2 ft. (0.6 m) below the surface of the water when connected to the pump by 20 ft. (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

- (1) Air temperature: 0°F to 110°F (−18°C to 43°C)
- (2) Water temperature: 35°F to 90°F (2°C to 32°C)
- (3) Barometric pressure: 29 in. Hg (98.2 kPa), minimum (corrected to sea level)

Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

- (1) Aerial hydraulic pump
- (2) Foam pump
- (3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
- (4) Winch
- (5) Windshield wipers
- (6) Four-way hazard flashers
- (7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3 1/2 per ASME B40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3A or 4A gauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed-measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stop watch, or other engine speed-measuring means that is accurate to within  $\pm 50$  rpm of actual speed.

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If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

## **Pumping Engine Overload Test:**

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

## **Pressure Control System Test:**

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

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- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).
- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa)  $\pm 5$  percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa)  $\pm 5$  percent.
- (8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).
- (11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa)  $\pm 5$  percent.
- (12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).

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- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa)  $\pm$ 5 percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa)  $\pm$ 5 percent.
- (8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

## **Priming System Tests:**

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 in. (100 mm) or larger intake pipe having a volume of 1 ft<sup>3</sup> (0.03 m<sup>3</sup>) or more.

## **Vacuum Test:**

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 in/Hg (75 kPa) by means of the pump priming system.

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At altitudes above 2000 ft. (600 m), the vacuum attained shall be permitted to be less than 22 in/Hg (75 kPa) by 1 in/Hg (3.4 kPa) for each 1000 ft. (305 m) of altitude above 2000 ft. (610 m).

The vacuum shall not drop more than 10 in/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

## **Water Tank-to-Pump Flow Test:**

A water tank-to-pump flow test shall be conducted as follows:

- (1) The water tank shall be filled until it overflows.
- (2) All intakes to the pump shall be closed.
- (3) The tank fill line and bypass cooling line shall be closed.
- (4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.
- (5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.
- (6) The engine throttle shall be adjusted until the required flow rate  $-0/+5$  percent is established.
- (7) The discharge pressure shall be recorded.
- (8) The discharge valves shall be closed and the water tank refilled.
- (9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.
- (10) The discharge valves shall be reopened fully and the time noted.
- (11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).
- (12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

## **Volume Discharge Calculation:**



# Mayer Engine Body spec.

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharge.

## **Engine Speed Advancement Interlock Test**

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (2) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

# Mayer Engine Body spec.

- (1) The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the “Pump Engaged” or the “OK to Pump In-Motion” position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator’s panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

## **LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING**

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0°F and 110°F (–18°C and 43°C). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

### **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 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 test failure of the battery system.

### **Alternator Performance Test at Idle:**

The minimum continuous electrical load shall be activated with the engine running at idle speed.

# Mayer Engine Body spec.

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.

## **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 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

## **Low Voltage Alarm Test:**

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine 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.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

Y\_\_\_N\_\_\_

## **FACTORY PRECONSTRUCTION CONFERENCE**

The factory authorized Distributor shall be required, prior to manufacturing, to have a preconstruction conference at the manufacturing facility with a factory representative present and individuals from the \_\_\_\_\_ Fire Department to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and

# Mayer Engine Body spec.

meals. Any distance greater than 220 miles shall be by commercial air travel.

Y\_\_N\_\_

## **MID-CONSTRUCTION INSPECTION CONFERENCE**

The factory authorized Distributor shall be required, during manufacturing, to have a mid-construction conference at the site of the manufacturing facility with \_\_\_\_\_ individuals from the \_\_\_\_\_ to inspect the apparatus during construction. The "Purchaser" shall designate the stage of construction at which the visit will be conducted.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 220 miles shall be by commercial air travel.

Y\_\_N\_\_

## **FINAL INSPECTION CONFERENCE**

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with \_\_\_\_\_ individuals from the \_\_\_\_\_ to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 220 miles shall be by commercial air travel.

Y\_\_N\_\_

## **ON-LINE CUSTOMER INTERACTION**

The manufacture shall provide the capability for online access through the manufacture's website. The customer shall be able to view digital photos of their apparatus in the specified phases of construction. The following phases will be captured and displayed on the manufacture's website:

4. Chassis
5. Body – Prior to Paint
6. Body – Painted
7. Pump and Plumbing
8. Assembly – 80% Complete

Due to the complex nature of fire apparatus and the importance of communication between the manufacture and customer, this line item is considered a critical requirement.

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## MAXIMUM OVERALL LENGTH REQUIREMENT

Y\_\_N\_\_

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

## MAXIMUM OVERALL HEIGHT REQUIREMENT

Y\_\_N\_\_

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

## MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

Y\_\_N\_\_

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99") inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripherals that are 'removable' shall not be incorporated into this measurement.

Items that are considered 'removable' are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Etc.

## MAXIMUM WHEEL BASE REQUIREMENT

Y\_\_N\_\_

The apparatus specified shall be constructed with no restrictions to the maximum wheel base.

## PUMP MOUNTING

Y\_\_N\_\_

The chassis provided jackshaft shall be replaced by the pump installation indicated later in this specification.

## TIRE PRESSURE INDICATOR VOUCHER

Y\_\_N\_\_

# Mayer Engine Body spec.

A voucher will be provided by the chassis manufacturer with the owner's manual for redemption by the customer.

To redeem the voucher, the customer will be required to supply the chassis manufacturer with the SO# or VIN, mileage at time of call, and an accurate in-service weight for the front and rear axle on the apparatus. This will allow the chassis manufacturer to provide a set of tire pressure indicators that accurately corresponds to the recommended pressure setting for that particular application.

The tire pressure and load indicated on the sidewall of a tire corresponds to the maximum permissible values based on the design of the tire. For optimal tire performance (including ride, handling, life, and fuel efficiency), actual tire pressure should be set according to the load that the axle will carry during in-service use. Tire manufacturers publish load / inflation tables for the purpose of determining the appropriate tire pressure for various axle loads based on tire and rim industry guidelines. These tables, along with the information provided by the customer, will be used by the chassis manufacturer to select the appropriate PSI settings for the indicators.

Y\_\_\_N\_\_\_

## **CAB TILT CONTROL**

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the upper auxiliary pump access panel.

There shall also be a cab tilt instruction plate located as close as possible to the control pendant for ease of operation.

Y\_\_\_N\_\_\_

## **SMART STORAGE FUEL FILL ASSEMBLY**

There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the left rear Smart Storage module behind the rear axle.

The fuel fill assembly will have a door that matches the Smart Storage module doors. There shall be a drain in the fuel fill assembly to allow over flow to drain on the back side of the apparatus body. The fuel fill cap shall be manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The stainless steel fuel fill neck shall have a 3/8" inside diameter vent line installed from the top of the fuel tank to the fill tube.

# Mayer Engine Body spec.

## **AIR TANK DRAIN CABLES (extended)**

Y\_\_N\_\_

There shall be manual pull air tank drain cables provided with the apparatus. The cables shall be extended to the outer edge of the apparatus to facilitate draining moisture from the chassis air tanks. A label shall be affixed indicating "Air Tank Drain".

## **CHASSIS SUPPLIED SIREN(S)**

Y\_\_N\_\_

The siren(s) shall be provided with the chassis.

## **CHASSIS SUPPLIED SIREN SPEAKER(S)**

Y\_\_N\_\_

The siren speaker(s) shall be provided with the chassis.

## **AIR HORNS**

Y\_\_N\_\_

The air horn(s) shall be provided with the chassis.

## **CHASSIS REQUIRED LABELING**

Y\_\_N\_\_

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided and installed in the cab and be visible from all seating positions.

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

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

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Y\_\_N\_\_

## **APPARATUS INFORMATION LABEL**

A high-visibility label shall be provided and installed in a location clearly detectable to the driver while in the seated position indicating the following:

The label shall indicate the following specified information.

Overall Height listed in feet and inches.

Overall Length listed in feet and inches.

Overall GVWR listed in tons.

Y\_\_N\_\_

## **CAB HELMET WARNING LABEL**

A high-visibility label shall be installed in a location clearly detectable from each seating position. The label shall indicate the following specified information.

“DO NOT WEAR HELMET WHILE SEATED”

Y\_\_N\_\_

## **HELMET RESTRAINTS**

Seven (7) Ziamatic UHH-1 Universal Helmet Holders shall be provided and installed during the final inspection process.

Y\_\_N\_\_

## **MUD FLAPS**

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

Y\_\_N\_\_

## **PUMP COMPARTMENT**

The complete apparatus pump compartment shall be constructed of a combination of structural

Y\_\_N\_\_



# Mayer Engine Body spec.

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

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

Y\_\_\_N\_\_\_

## **VIBRA-TORQUE™ PUMP MODULE MOUNTING SYSTEM**

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

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

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torque™ body mounting system shall have a lifetime warranty.

Y\_\_\_N\_\_\_

# Mayer Engine Body spec.

## PUMP COMPARTMENT HEATER

One (1) 30,000 BTU auxiliary heater shall be provided and installed inside the pump compartment. The heater shall be connected to the engine cooling system with gated valves located inside the engine compartment.

Dual 12 volt electric fans shall be installed and controlled with single toggle switch and a LED indicator light on the operator's pump control panel. The switch shall be of a weather resistant type.

The switch shall be labeled "PUMP HOUSE HEATER".

Y\_\_N\_\_

## HEAT PAN

There shall be a heat pan enclosure provided and installed under the apparatus fire pump.

The heat pan assembly shall be fabricated of 3/16" aluminum. The top portion shall be bolted in place. The enclosure shall have two slide out trays; one on each side of the apparatus for ease of service and maintenance. The bottom trays shall be held in the place with mechanical style latch devices.

Y\_\_N\_\_

## OPERATORS PANEL

The operators panel shall be a "top mount", constructed on **one** incline surfaces. The lower panel shall be used to house all valve controls with the upper panel housing the discharge and other pump monitoring gauges. Valve control levers shall be immediately adjacent and instruments shall be neatly arranged for easy access and visible from the operator's location.

Y\_\_N\_\_

## SPEEDLAY HOSE BEDS

Two (2) 200' 1-3/4" speedlay hose beds shall be provided in the forward portion of the pump compartment module. The speedlay hose beds shall be constructed as an integral part of the pump compartment tubular structure.

The speedlay hose beds shall be approximately twelve (12) inches tall and approximately six and a half (6-1/2) inches wide for laying a double stack of each hose size specified.

# Mayer Engine Body spec.

The speedlay hose beds shall span the entire width of the pump compartment module. Slotted smooth aluminum flooring shall be provided for hose area drainage. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the speedlay hose bed opening.

Y\_\_N\_\_

Two (2) 24.00" model #RX-15T16-5050-61CM and one (1) center mounted 9.00" model #RX-15T16-5050-21CM LED Tube lights, shall be installed under a brushed stainless steel light shield for illumination of the pump operator's control panel.

Three (3) 9.00" model #RX-15T16-5050-21CM, LED Tube lights shall be installed in a light shield mounted on the left and right sides of the pump compartment. There shall also be an LED directional light Grote style #60571 clear Surface Mount series installed on each side of the pump panel to illuminate the plumbing components.

There shall be a switch on each side of the pump compartment to turn three (3) of the operators panel lights and the side directional lights on or off. This switch shall also activate any area step lighting. The fourth light on the pump panel shall illuminate when the pump is engaged and it is "OK TO PUMP".

Y\_\_N\_\_

## **CAB TO PUMP COMPARTMENT SEAL**

The gap between the cab and pump compartment shall be sealed with a rubber boot. This shall be a water and weather tight seal of neoprene or a similar material and shall be made replaceable. The painted cab area wear the boot may come in contact with shall be overlaid with brushed stainless steel to prevent the boot from wearing the paint off the cab.

Y\_\_N\_\_

## **PUMP COMPARTMENT SERVICE ACCESS**

The front portion of the pump compartment structure shall not be permanently overlaid to provide an opening for access to the midship fire pump. A removable tread plate panel shall be easily removed or installed, secured by two push-button latches.

Removable speedlay hose bed trays shall be provided to facilitate hose loading and serviceability of the pump and components. The speedlay hose beds shall be easily removed from the pump compartment tubular structure.

Y\_\_N\_\_

# Mayer Engine Body spec.

## **PUMP COMPARTMENT STRUCTURE**

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

Y\_\_N\_\_

The width of the pump compartment (front to back) shall be 56".

Y\_\_N\_\_

## **APPARATUS LABELING**

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

Y\_\_N\_\_

## **BEZELS FOR DISCHARGE GAUGES**

Deluxe metal bezels shall be supplied around the discharge pressure gauges.

Y\_\_N\_\_

## **BRUSHED STAINLESS STEEL CONTROL PANEL**

The surface of the operator's control and gauge panel shall be manufactured from heavy duty "Brushed Stainless Steel", that is capable of withstanding the effects of extreme weather and temperature.

Y\_\_N\_\_

## **BRUSHED STAINLESS STEEL SIDE PANELS**

There shall be two (2) side pump panels on each side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by quick-release type latches, closing against a door seal. The lower panel shall be easily removed for a large access to the pump for service.

All panels shall be made from 14 gauge "Brushed Stainless Steel" capable of withstanding the

# Mayer Engine Body spec.

effects of extreme weather and temperature.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be made of "Brushed Stainless Steel".

Y\_\_N\_\_

## **RUNNING BOARDS**

The running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface.

Y\_\_N\_\_

## **GRIP STRUT-INSERT**

The left side running board shall have aluminum diamond "Grip Strut" insert installed. The surface area shall be as large as possible by extending to the perimeter of the inside of the structural running board framework.

The "Grip Strut" material will allow debris and water to pass through to eliminate build-up, thereby aid in retaining the minimum NFPA standard requirements for slip resistance.

Y\_\_N\_\_

## **HOSE WELL**

The right side running board area shall have a hose well with compartment matting and drain holes. The hose well shall be fabricated of 1/8" aluminum diamond plate.

The hose well shall be fabricated of 1/8" aluminum diamond plate. The hose well shall be formed so that the smooth surface of the material is to the inside of the well and the raised diamonds show to the exterior.

The hose well shall be bolted into the tubular structural framework of the pump compartment running board for easy removal in the event that it may become damage requiring replacement.

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The hose well shall be approximately 8" deep (measured from the top of the running board) and as wide and long as possible to fit in the framework of the running board.

There shall be a stepping surface of 3/16" embossed aluminum diamond plate material located below the crosslay or speedlay to aid in loading or unloading hose. The stepping surface shall be as wide as the crosslay or speedlay area.

Y\_\_N\_\_

There shall be two (2) velcro straps provided at the top of the hose well. The straps shall be used to hold the hose in place during transit.

Y\_\_N\_\_

## **MASTER GAUGES**

The master intake and master discharge gauges shall be manufactured by Class One and installed on the pump operator's panel. They shall be liquid filled to keep the dial from pulsating and also to prevent condensation from forming inside the gauges. The master gauges shall be 4 1/2" in diameter.

The master intake gauge shall read from - 30 to 400 psi with the master discharge gauge reading from 0 to 400 psi. The gauges shall be Class 1 model LFP-410.

Y\_\_N\_\_

## **TESTING PORTS**

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump. They shall have 0.25 in. standard pipe thread connections and be manufactured of non-corrosive polished stainless steel or brass plugs.

Y\_\_N\_\_

## **PRESSURE GOVERNOR**

The Pressure Governing System supplied with the chassis shall be installed on the pump panel. The PSG allows for pump pressure control and throttle control.

Y\_\_N\_\_

## **PRESSURE RELIEF VALVE**

# Mayer Engine Body spec.

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with 90, 125, 150, 200, 250 and 300 PSI adjustment settings and an "OFF" position. Pressure adjustments shall be made utilizing a 1/4" hex key, 9/16" socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet NFPA 1901 requirements for pump inlet relief valves. The unit shall be covered by a five year warranty.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

Y\_\_N\_\_

## **HEAT EXCHANGER**

The supplementary heat exchanger cooling system provided on the chassis, it shall be complete to the discharge side of the fire pump through to the engine compartment, without intermixing, for absorption of excess heat.

The heat exchanger shall be adequate in size to maintain safe operating temperature of the coolant in the pump drive engine and not in excess of the engine manufacturer's temperature rating, under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing.

Y\_\_N\_\_

## **HEAT EXCHANGER DRAIN VALVE**

A Class One 1/4" ball drain valve (#14BV) with manual shut-off shall be provided for the heat exchanger. The drain valve shall be installed at the pump operator's position.

Y\_\_N\_\_

## **GAUGE HEATER**

There shall be an MC Products "Panel Gauge Heater" furnished and installed on all gauge lines.

Y\_\_N\_\_

## **AIR HORN BUTTON**

# Mayer Engine Body spec.

There shall be an air horn activation red push button furnished and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled "AIR HORN".

Y\_\_N\_\_

## **PUMP COMPARTMENT TOP OVERLAY**

The top of the pump compartment shall be overlaid with materials of a non slip 3/16" embossed aluminum diamond plate, meeting the minimum NFPA standard requirements for slip resistance.

Y\_\_N\_\_

## **TRANSVERSE STORAGE AREA**

A single wall 1/8" aluminum diamond plate transverse storage area shall be provided above the pump for equipment mounting and storage. The compartment shall be as wide as possible from side to side, and as deep as allowed with the available space.

To hold two long back boards and one Little giant ladder.

The compartment shall be transverse with access doors on each side of the pump house. The doors shall be fabricated of the same material as the pump house overlays. Each access door shall be vertically hinged, and have a gas strut hold open device, with up to three (3) push button latches, and one (1) 7 " chrome handle centered on the door.

If the doors are not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "Door Open" indicator light in the cab to warn the crew.

Y\_\_N\_\_

## **MIDSHIP PUMP**

The pump shall have a capacity of 1500 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSUC20, single stage midship pump.

Y\_\_N\_\_

The pumps impellers shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive



# Mayer Engine Body spec.

particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3 1/2" openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35" in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest NFPA 1901. Pump shall be free from objectionable pulsation and vibration.

The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below.

100% of rated capacity at 150 PSI net pump pressure.

100% of rated capacity at 165 PSI net pump pressure.

70% of rated capacity at 200 PSI net pump pressure.

50% of rated capacity at 250 PSI net pump pressure.

# Mayer Engine Body spec.

Y\_\_N\_\_

## **MASTER DRAIN VALVE**

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

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper function, such as draining, or if no lower or vertical sill exists. In this event, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver’s side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

Y\_\_N\_\_

## **PUMP SEALS**

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

Y\_\_N\_\_

## **PRIMING SYSTEM**

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

**The rear suction shall have an individual primer button.**

Y\_\_N\_\_

## **PRIMER CONTROL**

# Mayer Engine Body spec.

There shall be a push button control to simultaneously actuate the primer control valve and the primer motor.

Y\_\_N\_\_

## **OVER HEAT PROTECTION MANAGER**

A Waterous Overheat Protection Manager (OPM) valve shall be installed to protect the pump from overheating. The OPM shall consist of a valve that opens when the water in the pump reaches 140° F (60° C) and a warning light on the pump panel that is triggered by a thermal switch when the water in the pump reaches 180° F (82° C). It shall be mechanical and not require constant operator monitoring.

The warning light shall act as an additional protection device if the temperature inside the pump keeps rising although the valve is open.

The relief valve shall discharge out below the running board.

Y\_\_N\_\_

## **MAIN PUMP INLETS**

A 6.00 inch (152mm) pump manifold inlet shall be provided on each side of the pump. The shorter style inlets shall protrude less than 2 inches (50mm) away from the side panels, allowing an external valve to be connected and not protrude past the apparatus body sides while maintaining a low connection height.

The main pump inlets shall have National Standard Threads and include removable screens designed to provide cathodic protection for reducing deterioration in the pump.

Y\_\_N\_\_

## **INTAKE WATERWAY VALVE(S)**

Two (2) Akron brand 6" Electrically operated wafer valve(s) shall be mounted directly to the pump intake manifold and be located behind the pump panels.

The valve shall be mounted between the main pump body casting and the steamer inlet casting. A quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve (by a 3/4" NPT port) to help evacuate air from the system and avoid cavitation of the pump.

# Mayer Engine Body spec.

A pressure relief valve with a range of adjustment from 75 to 250 PSI shall be installed inside pump compartment piped to the suction side of the pump. The valve shall be preset at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere.

Y\_\_N\_\_

For normal pumping operations, the relief valve shall not be capped and there shall be a placard installed indicating "DO NOT CAP".

The controller shall be an Akron Brass Style 9313 Navigator™ Valve Controller. The electric controls must be of current limiting design, requiring no clutches in the motor. The unit must have booted switches with momentary open and close as well as an optional one touch full open feature to operate the actuator. Bezel and case must be brass material.

Y\_\_N\_\_

The unit must be capable of connecting to an auxiliary controller for operation at another location up to 370 feet away from the master control. The controller must have individual light indicators of red, yellow and green long life LEDs with light pipes for maximum visibility and carry a five-year warranty.

## **5" STORZ ELBOW & CAP(S)**

Y\_\_N\_\_

There shall be two (2) 6"NST Female Swivel x 5" Storz aluminum elbow(s) and two (2) 5" Storz cap(s) installed.

## **PUMP COOLING LINE**

Y\_\_N\_\_

There shall be a 3/8 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A quarter turn on/off valve shall be installed on the operator's panel.

## **PUMP ANODE(S)**

Y\_\_N\_\_

Two (2) pump anode(s) shall be installed in plumping system of the apparatus, to prevent damage from galvanic corrosion within the pump system.

# Mayer Engine Body spec.

Y\_\_N\_\_

## **STAINLESS STEEL PLUMBING**

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

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

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

Y\_\_N\_\_

## **PUMP HOUSE LINE PROTECTION**

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied and rubber coated "P" clamped, to keep the items secured.

Y\_\_N\_\_

## **DRAIN VALVES**

All manual drains shall be Class One model #120381, with 3/4" J-style lift handle kit.

# Mayer Engine Body spec.

Y\_\_N\_\_

## **REAR SUCTION**

There shall be an auxiliary steamer inlet located on the rear of the apparatus. A manual drain shall be provided and the lowest point of the line. A total quantity of one (1) shall be provided with the following specified components:

Y\_\_N\_\_

## **PRESSURE RELIEF VALVE**

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with 90, 125, 150, 200, 250 and 300 PSI adjustment settings and an "OFF" position. Pressure adjustments shall be made utilizing a 1/4" hex key, 9/16" socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet NFPA 1901 requirements for pump inlet relief valves. The unit shall be covered by a five year warranty.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

Y\_\_N\_\_

A 5" Akron Brass 7950 electrically actuated "Butterfly" valve with quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve (with a 3/4" NPT port) to help evacuate air from the system and avoid cavitation of the pump.

Y\_\_N\_\_

## **STYLE 9313 VALVE CONTROLLER**

The control valve shall be an electric Akron Brass model#9313.

The electric controls shall be of current limiting design, requiring no clutches in the motor. The unit shall have booted switches with momentary open close as well as an optional one touch full open feature to operate the actuator. The unit shall be capable of connecting to an auxiliary controller for operation at a location away from the master. The unit shall provide position indication through 10 LED light indicators, providing maximum visibility.

# Mayer Engine Body spec.

The plumbing shall consist of 5" piping, and shall include a suction relief valve with a range of pressure adjustment from 75-250 psi (5.1-17.2 bar). The valve shall be preset at 125 psi (8.6 bar) suction inlet pressure.

Y\_\_N\_\_

The suction termination shall include the following components:

Y\_\_N\_\_

One (1) 6" NST male adapter

There shall be one (1) 6"NST Female Swivel x 5" Storz aluminum elbow(s) and one (1) 5" Storz cap(s) installed.

The suction shall be plumbed with manually operated drains in the lowest point(s) of the piping.

Y\_\_N\_\_

The inlet shall be located on the right rear of the apparatus, below the hose bed and Intake to be no more than 42" from ground level for drafting purposes.

Y\_\_N\_\_

## 2.5" LEFT SIDE SUCTION

There shall be a gated suction inlet with .75 inch (19mm) bleeder installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

Y\_\_N\_\_

The plumbing shall consist of 2.5" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The suction termination shall include the following components:

Y\_\_N\_\_

One (1) 2.5" NST swivel female adapter with screen

# Mayer Engine Body spec.

One (1) 2.5" male self-venting plug, secured by a chain

Y\_\_N\_\_

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

## **PRE-CONNECTS**

One (1) hose bed pre-connects shall be provided for 2 1/2" hose.

Y\_\_N\_\_

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

The plumbing shall consist of 2 1/2" piping, to the left side lower corner of the hose bed header wall and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The discharge termination shall include the following components:

One (1) 2.5" NPT x 2.5" MNST chrome plated brass fitting

Y\_\_N\_\_

The discharge shall terminate to the left side lower corner of the hose bed header wall.

Y\_\_N\_\_

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

## **RIGHT SIDE DISCHARGES**



# Mayer Engine Body spec.

There shall be a gated discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

Y\_\_N\_\_

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

The plumbing shall consist of 2 1/2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The discharge termination shall include the following components:

One (1) 2.5" Male NST adapter

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female by 1.5" male reducer

One (1) 1.5" female self-venting cap, secured by a chain

Y\_\_N\_\_

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

## **LEFT SIDE DISCHARGE**

There shall be a gated discharge installed on the left side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

Y\_\_N\_\_

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

# Mayer Engine Body spec.

The plumbing shall consist of 2 1/2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The discharge termination shall include the following components:

Y\_\_N\_\_

One (1) 2.5" Male NST adapter

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female by 1.5" male reducer

One (1) 1.5" female self-venting cap, secured by a chain

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

## **MASTER DISCHARGE**

Y\_\_N\_\_

There shall be a master discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

A 3 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

The plumbing shall consist of 4" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The discharge termination shall include the following components:

Y\_\_N\_\_

# Mayer Engine Body spec.

One (1) 4" NST adapter

One (1) 4" NST female swivel by 5" Storz cast aluminum 30 degree elbow

One (1) 5" female Storz self-venting cap, secured by a chain

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

## **RIGHT REAR DISCHARGE**

Y\_\_N\_\_

There shall be a gated discharge installed on the right rear of the apparatus. A total quantity of one (1) shall be provided with the following specified components: [Farthest right location on rear, with plumbing pipe thru the tank and piped with elbows to outer bulk head.](#)

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

The plumbing shall consist of 2 1/2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The discharge termination shall include the following components:

Y\_\_N\_\_

One (1) 2.5" Male NST adapter

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female by 1.5" male reducer

One (1) 1.5" female self-venting cap, secured by a chain

# Mayer Engine Body spec.

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

## **PUMP COMPARTMENT SPEEDLAYS**

Y\_\_N\_\_

Two (2) speedlay(s) shall be provided for up to 200 feet (60m) of 1.75 inch (44.4mm) hose.

Y\_\_N\_\_

Chicksan swivels shall be installed above each speedlay hose bed accessible enough for hose couplings to be tightened on to chicksans and allow the speedlay hose beds to be removable, if required.

The speedlay hose beds shall have vertical and horizontal hand cut outs in each end to aid tray removal and replacement. Chicksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

Y\_\_N\_\_

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

The plumbing shall consist of 2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Y\_\_N\_\_

The discharge termination shall include the following components:

One (1) 2" NPT x 1.5" NST brass chicksan swivel

Y\_\_N\_\_

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

# Mayer Engine Body spec.

## SPEEDLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the speedlay hose bed area. The trim shall extend 8" into the speedlay bay opening from the outer edge. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

Y\_\_N\_\_

## SPEEDLAY COVER

The speedlay hose bed area shall have a vinyl cover installed on the sides of the speedlay bay openings. Each cover shall be held in place by Velcro on all four sides. A nylon strap with handle shall be attached to the bottom for fast access with a gloved hand.

Y\_\_N\_\_

The speedlay hose bed covers shall be red in color.

Y\_\_N\_\_

## DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway(s) installed on the apparatus.

Y\_\_N\_\_

A 3 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

The waterway shall be plumbed with 3" piping that terminates 3" above the top of the pump compartment unless otherwise specified or required by a specific deck gun selection as noted.

Y\_\_N\_\_

The plumbing shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

Y\_\_N\_\_

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

# Mayer Engine Body spec.

the stowed position.

Y\_\_N\_\_

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 LFP.

Y\_\_N\_\_

The deluge pipe shall be located behind the pump compartment, in the hose bed.

Y\_\_N\_\_

There shall be one (1) Elkhart Stinger 2.0 series portable monitor with discharge pipe, provided and installed on the apparatus. The deck gun shall be mounted to the deluge waterway via a top mount adapter and include the following components:

One (1) 282-A- stream shaper.

One (1) ST-194 Stacked Tips.

One (1) standard controls.

Y\_\_N\_\_

The portable ground base shall have (2) 2.5" NHT clappered female inlets.

Y\_\_N\_\_

There shall be one (1) Elkhart model # SM-1000, 300-1000 GPM nozzle provided with the apparatus.

Y\_\_N\_\_

## **ONE-TOUCH RAPIPD CAFS**

A One Touch Rapid 200 cfm compressed air foam system shall be installed to provide compressed air foam to the designated discharges. The consistency of the compressed air foam shall be individually adjustable to each discharge outlet.

## **Operational Features**

# Mayer Engine Body spec.

All CAFS operations are initiated with a 'one touch' button capable of supplying water, foam, wet CAFS or dry CAFS to different discharges simultaneously.

Operations shall be equipped with an automated mechanical balancing valve that requires no adjustments.

The foam system will start automatically when foam is required for CAFS.

Air is injected through a unique combination air injection mixing inductor.

## **Safety Features**

Air will shut off automatically when foam stops flowing or the foam tank runs dry.

Air will shut off automatically when water stops flowing.

The air compressor will shut off automatically if the compressor overheats.

## **Air Compressor System**

The air compressor shall be driven by a shaft from a PTO mounted to the transmission. The compressor air end shall be of the oil flooded rotary screw type, designed to supply a minimum of 200 SCFM of free air, at maximum CAFS operating RPM.

A pneumatic modulating inlet valve mounted on the air end inlet shall control the airflow into the compressor. This controller shall sense air pressure and control the air delivery of the air end while maintaining constant pressure. A balancing valve system shall be provided to maintain the proper air pressure in relation to the water pressure throughout the operating range of the system, within plus or minus 5% of the water pump pressure, throughout the pressure range.

The compressor system sump/pressure vessel shall be constructed in compliance with the requirements of the ASME Boiler and Pressure Vessel Code and include an ASME certification plate affixed to the outside of the vessel. The sump/pressure vessel shall be equipped with an oil level sight glass, drain valve, air pressure relief valve and threaded oil fill cap.

The air compressor system shall feature a spin-on, full-flow oil filter unit.

The compressor shall be cooled by the apparatus fire pump, utilizing a water cooled heat exchanger. The cooler shall be capable of operating at 124,000 BTU/hr. Water shall flow through the heat exchanger whenever the fire pump is operating. The compressor cooling system shall be capable of maintaining recommended operating temperatures throughout its full operating range at ambient temperatures up to 120degrees Fahrenheit. An interlock shall be provided to preclude engagement of the compressor PTO unless the fire pump is engaged.

## **Compressor System Protection**

A warning system shall be provided in the air compressor hydraulic oil system to alert the operator to high temperature. A warning light and audible alarm shall be mounted on the pump

# Mayer Engine Body spec.

operators panel. If the compressor overheats, the system shall automatically disengage the PTO to prevent damage to the air compressor.

## **Plumbing**

The CAFS system shall be able to be operated simultaneously in several pumping modes; water only, foam solution without compressed air, compressed air foam and compressed air only for support operations. It shall be possible to pump water from one discharge, foam solution from another discharge while pumping compressed air foam from another discharge.

A foam discharge manifold shall be installed to distribute the foam solution to the designated foam discharges. A check valve is provided at the inlet end of the foam manifold to prevent foam solution back-flow into the pump. All foam discharge piping shall be stainless steel and/or high-pressure wire braid reinforced hose with stainless steel fittings.

Each compressed air foam discharge shall be equipped with individual corrosion resistant check valves on the compressed air plumbing that prevent back-flow of foam solution, air and/or compressed air foam into the pump, air lines or foam proportioning system. There will be a check valve on the foam manifold that prevents backflow of foam solution into the pump or other discharges.

## **Controls and Instruments**

The following CAFS controls and instruments shall be provided on the pump operator's panel, arranged in a logical and operator friendly manner:

Air compressor engage switch and indicator light  
Air compressor temperature gauge with warning light and audible alarm  
CAF system air pressure gauge

## **System Tests**

Prior to delivery to the customer, the apparatus manufacturer shall test the operation of the water pump and air compressor system simultaneously to determine the integrity of the system and to ensure that there is adequate power available to operate these components as a complete compressed air foam system.

## **Manuals**

Two (2) complete operation and maintenance manuals shall be provided with the completed apparatus. One manual will be printed and the other will be delivered on a CD-ROM. Manuals shall include instruction in the operation and maintenance of the overall compressed air foam system and each major component.



# Mayer Engine Body spec.

## ONE TOUCH CAFS CONTROLS

### **Controls and Instruments**

The following CAFS controls and instruments shall be provided on the pump operator's panel, arranged in a logical and operator friendly manner:

One Touch button to activate CAFS for each CAFS – ready discharge  
Air compressor oil temperature gauge with warning light  
CAF system duplex air pressure / water pressure gauge.

Each discharge will utilize a manually operated water discharge valve with the CAFS operation controlled by a push button switch on the panel adjacent to the manual valve handle. Each discharge will also incorporate a paddlewheel into the plumbing to recognize movement in the foam flow. One push on the button will turn the foam system on (if it is not on) and after the paddlewheel sends a flow signal, 5 seconds will elapse and then the air valve will open for that discharge. The time delay will insure foam flow to avoid the “slug flow” condition in the line that comes from an air water mix without foam.

“Wet” or “dry” foam consistency is achieved by opening or closing the manual valve control.

If the foam system runs out of foam, the system will automatically shut off the individual air valves.

Y\_\_\_N\_\_\_

## HOT SHIFT PTO

A ‘hot’ shift shall be added to the CAFS installation.

A guarded switch located on the pump operator's panel shall be used to engage and disengage the PTO and activate the CAFS system.

The switch shall be labeled “CAFS PTO ENGAGED”

The switch shall be supplied with an indicator light. This light will be energized when the PTO is engaged.

Y\_\_\_N\_\_\_

## 2.5" AUTOMATIC WATER TANK FILL SYSTEM

# Mayer Engine Body spec.

A 2.5" inch electrically actuated, automatic water tank fill system with rapid fill module shall be installed on the apparatus. The system shall monitor the water level in the tank and automatically re-fill as required during pumping operations. An activation switch for the system shall be located at the pump operator's panel.

This system is especially useful during CAFS operations due to the optimum CAFS proportioning achieved by pumping from the tank.

Y\_\_N\_\_

The Inlet shall be terminated at the left rear face of the apparatus body, directly below the intermediate step. [Intake to be no more than 42" from ground level for easy hook up from ground level to hydrant.](#)

Y\_\_N\_\_

The inlet termination shall include the following components:

One (1) 2.5" FNST 45 degree swivel elbow

One (1) 2.5" MST plug, secured by a chain

Y\_\_N\_\_

## **HALE FOAMLOGIX**

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

The system shall operate via a paddlewheel flow sensor mounted in a 3-inch stainless steel double waterway check-valve manifold that includes a ½-inch chemical injection point check valve. The foam proportioning system shall be rated at 2.1A-gpm-foam concentrate flow rate with maximum operating pressure of 250 PSI.

The system shall operate via a paddlewheel flow sensor mounted in a 3-inch stainless steel double waterway check-valve manifold that includes a ½-inch chemical injection point check valve. This double check-valve assembly is required for backflow prevention and NFPA compliance. A single check valve assembly will not be permitted.

The system shall be equipped with a digital electronic control display. The electronic control unit shall permit the pump operator to perform the following control and operation functions for the

# Mayer Engine Body spec.

foam proportioning system:

- Provide push-button ON/OFF control of foam proportioning system.
- Provide push-button control of foam proportioning rates from 0.1% to 1%, in 0.1% increments.
- Show real time flow rate of water or foam solution.
- Show total volume of water or foam solution discharged during and after foam operations.
- Show foam concentrate injection rate.
- Show total amount of foam concentrate consumed.
- Permit resetting of totalized values for water and foam concentrate.
- Simulate water flow rates for manual operation, calibration and testing of foam system.
- Enable system setup and full range system diagnostic functions.
- Indicate on LED bargraph foam concentrate is being injected and the foam system capacity.
- Indicate on LED bar graph when system capacity is not within design parameters.
- Store independent default values for Class A and Class B foam concentrate injection.
- Flash a "low concentrate" warning when the foam concentrate tank runs low.
- Flash a "no concentrate" warning and shut the system off when the foam tank is empty.
- Flash a "low battery" warning when battery voltage is low enough to affect system operation.
- Flash a "hot" warning when system is running hot due to low voltage or radiant heat.
- Read out calibration valves to allow setting up a replacement unit.

Y\_\_N\_\_

## **FOAM SYSTEM TESTING**

The apparatus foam system shall be tested and certified.

Y\_\_N\_\_

The foam system shall supply a total of three (3) discharge(s) as specified below:  
[Two speedlays and Left rear 2 1/2" discharge.](#)

Y\_\_N\_\_

The system shall be supplied by a single foam tank.

Y\_\_N\_\_

## **FOAM TANK**

A 20 gallon foam tank with square hinged lid, equipped with a hold down device shall be installed and plumbed with non-corrosive piping to the foam system. The fill tower shall be approximately 10" x 10".

# Mayer Engine Body spec.

A label shall be affixed to the foam tank fill indicating: "WARNING" Class A (or B) foam tank fill, do not mix brands or types of foam.

Y\_\_N\_\_

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

Y\_\_N\_\_

There shall be a 1" quarter turn drain valve installed to drain the foam tank. The valve shall be installed in the pump house with a drain line extended to the side running board.

The drain line shall be labeled "FOAM DRAIN".

Y\_\_N\_\_

## **FOAM TANK LEVEL GAUGE**

There shall be one (1) Fire Research TankVision LED electronic foam level gauge located on the operator's control panel. This level gauge utilizes ultra bright LEDs for sunlight readability, and two wide-viewing lenses for 180 degrees of clear viewing.

Y\_\_N\_\_

## **FOAM TANK REFILL SYSTEM**

The apparatus shall be equipped with a 12 volt foam tank refill system that allows the foam tank to be refilled from the ground/outside source. The system shall be controlled from a momentary type on/off switch located on the pump operators panel, and shall have an automatic shutoff switch when the foam tank is full. The system shall be provided with a pickup tube and be suitable for Class A foam concentrate only.

Y\_\_N\_\_

## **AIR CHUCK OUTLET**

There shall be a quick disconnect air chuck outlet furnished and installed on the apparatus. The air chuck outlet shall be plumbed to the chassis air system and have on/off valve and label on the left side lower pump compartment sill.

Y\_\_N\_\_

## **TANK TO PUMP LINE**

# Mayer Engine Body spec.

The connection between the tank and the pump shall be capable of the flow recommendations in compliance with NFPA 1901 requirements and shall be tested to those standards when the pump is being certified.

One (1) non-collapsible flexible hose(s) and valve(s) shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 or Poly-Vinyl Chloride schedule 40 piping may be used to complete the connection from the tank to pump valve to the water tank.

Y\_\_N\_\_

A 3" Akron Brass 8000 series 'electric valve' with stainless steel ball.

Y\_\_N\_\_

## **STYLE 9313 VALVE CONTROLLER**

The control valve shall be an electric Akron Brass model#9313.

The electric controls shall be of current limiting design, requiring no clutches in the motor. The unit shall have booted switches with momentary open close as well as an optional one touch full open feature to operate the actuator. The unit shall be capable of connecting to an auxiliary controller for operation at a location away from the master. The unit shall provide position indication through 10 LED light indicators, providing maximum visibility.

Y\_\_N\_\_

## **TANK TO PUMP CHECK VALVE**

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

Y\_\_N\_\_

## **TANK FILL LINE**

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

Y\_\_N\_\_

# Mayer Engine Body spec.

A 2 1/2" Waterous valve with electric control. A bright LED display shall be provided on the valve control panel to show valve position.

Y\_\_N\_\_

## **TRI-MAX™ Space Frame Body- STAINLESS STEEL**

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

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

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design, ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

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

Body Material Type: All body structure and sheet material shall be premium grade Stainless Steel, Type 304L. This alloy is utilized because it provides an excellent balance of material strength, manufacturing properties, and corrosion resistance that is achieved through high levels of both chromium and nickel.

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by a sufficient corrosion and electrolysis inhibitor.

Front Body Compartment Walls: The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

# Mayer Engine Body spec.

Rear Body Compartment Walls: The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

Compartment Top: The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

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

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

Full depth side compartment: 1,000 lbs per compartment

Half depth side compartment: 750 lbs per compartment

Rear center compartment: 1,500 lbs per compartment

Exterior Hose Bed Walls: The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

Finite Element Analysis: The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

Y\_\_\_N\_\_\_

## PAINT SPECIFICATIONS

# Mayer Engine Body spec.

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

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

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

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

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

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

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

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

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

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

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

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



# Mayer Engine Body spec.

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

Y\_\_N\_\_

## BODY PAINT COLOR

The apparatus body shall be painted {" MUST SPECIFY " }.

Y\_\_N\_\_

## NATURAL COMPARTMENT FINISH

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

Y\_\_N\_\_

## REAR TAILBOARD

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body. The tailboard shall be two (2) independent assemblies welded to the rear body structural framing to provide body protection and a solid rear stepping platform. The center section shall be framed for a slide out platform.

Y\_\_N\_\_

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

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

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

# Mayer Engine Body spec.

Y\_\_N\_\_

The rear tailboard shall be approximately thirteen and one-half (13.5) inches deep and shall incorporate a ventilated "Diamondback" material stepping surface bolted in place which spans the full width of the apparatus on non-recess designs, and as wide as possible on inset recess designs. The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage.

The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools. The framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

Y\_\_N\_\_

## **SLIDE OUT PLATFORM**

One (1) slide out platform, utilizing an OnScene Solutions slide, approximately forty-one (41) inches in width shall be installed in the center of the rear tailboard, approximately 1" below the split outward tailboard sections.

The platform shall slide out approximately twelve (12) inches and lock in place when fully extended and when in the stowed positions.

The platform stepping surface shall be constructed of 1/8" embossed aluminum diamond plate materials to meet minimum NFPA standard requirements for slip resistance.

Y\_\_N\_\_

## **GENERAL BODY DETAILS**

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

## **FASTENERS**

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

## **WHEEL WELLS**

# Mayer Engine Body spec.

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

Y\_\_N\_\_

## WHEEL WELL MODULES

The body wheel well area shall be fabricated of smooth stainless steel and finish painted. There shall be “smart storage” compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

Y\_\_N\_\_

## WHEEL WELL ROLL-OUT DRAWER

There shall be a roll-out drawer installed above the rear wheel on the left side of the body. The drawer shall be approximately 23.5" deep by 59" wide and have a 220 lb. capacity.

Y\_\_N\_\_

## WHEEL WELL ROLL-OUT DRAWER

There shall be a roll-out drawer installed above the rear wheel on the right side of the body. The drawer shall be approximately 23.5" deep by 59" wide and have a 220 lb. capacity.

The right side drawer shall be shortened in length to accomodate air bag storage in the rear storage area.

Y\_\_N\_\_

## SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" Diameter x 24" long SCBA bottles with 1" nylon safety loops installed.

Y\_\_N\_\_

The compartment module shall be located in front of the axle on the right side.

# Mayer Engine Body spec.

Y\_\_N\_\_

## DIVIDED STORAGE COMPARTMENT

There shall be a compartment located in the wheel well for storage of [Rescue air bags](#) equipment.

[Sizes of bags and qty of bags to be determined at Preconstruction meeting.](#)

Y\_\_N\_\_

The compartment module shall be located behind the axle on the right side.

Y\_\_N\_\_

## SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" Diameter x 24" long SCBA bottles with 1" nylon safety loops installed.

Y\_\_N\_\_

The compartment module shall be located in front of the axle on the left side.

Y\_\_N\_\_

## INTEGRATED FLOOR DRY STORAGE MODULE

A floor dry storage module with pivoting re-fill access door shall be provided and installed in the apparatus wheel well area as specified.

The floor dry storage module shall be manufactured as large as possible to maximize the available space. The module shall be integrated into the wheel well area and be capable of storing approximately 50lbs. of all purpose floor dry absorbent compound material.

A manual drain shall be located at the bottom of the compartment for ease of dispensing the material. The storage module shall be labeled "Floor Dry".

Y\_\_N\_\_

The compartment module shall be located behind the axle on the left side.

Y\_\_N\_\_

The smart storage compartment doors shall be painted.

# Mayer Engine Body spec.

Y\_\_\_N\_\_\_

## **DOOR OPEN INDICATOR**

Each smart storage compartment door shall have a “plunger” style switch.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “Door Open” indicator light in the cab to warn the crew.

Y\_\_\_N\_\_\_

## **VIBRA-TORQUE™ BODY MOUNTING SYSTEM**

The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

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

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torque™ body mounting system shall have a lifetime warranty.

# Mayer Engine Body spec.

Y\_\_N\_\_

## **BODY STRUCTURE WIDTH**

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

Y\_\_N\_\_

## **COMPARTMENT VENTILATION**

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. The vents will be chrome louvered plate and installed appropriately on the compartment interior walls.

Y\_\_N\_\_

## **SIDE COMPARTMENT UNISTRUT**

Vertically mounted Unistrut shall be installed in all apparatus body "SIDE" compartments, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

Y\_\_N\_\_

## **COMPARTMENTATION**

The following compartments shall be supplied on the apparatus:

Compartment "L1": There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62.5" wide by 69" high with a depth of 25.5". The framed opening shall measure approximately 60.0" wide by 65" high.

Compartment "L2": There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 35" high with a depth of 25.5". The framed opening shall measure approximately 62" wide by 31" high.

Compartment "L3": There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62.5" wide by 69" high with an upper depth of 25.5" and the lower portion being transverse into the rear compartment, unless partitions are installed. The framed opening shall measure approximately 60.0" wide by 65" high.

# Mayer Engine Body spec.

Compartment "R1": There shall be one (1) full height compartment ahead of the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62.5" wide by 69" high with a depth of 25.5". The framed opening shall measure approximately 60.0" wide by 65" high.

Compartment "R2": There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 35" high with a depth of 25.5". The framed opening shall measure approximately 62" wide by 31" high.

Compartment "R3": There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62.5" wide by 69" high with an upper depth of 25.5" and the lower portion being transverse into the rear compartment, unless partitions are installed. The framed opening shall measure approximately 60.0" wide by 65" high.

Y\_\_\_N\_\_\_

## **FULL HEIGHT (WIDE OPENING) REAR CENTER COMPT W/ ROLL-UP DOOR**

"B1" Compartment: There shall be one (1) compartment located at the rear of the apparatus, directly below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43" wide and 47" high or as high as possible determined by the hose bed height with a depth of 31" dependent on suspension, with the sides of the compartment being open to the side compartments for maximum storage area.

The compartment shall have a roll-up door installed. The framed opening shall be approximately 43" wide and 42" high. The compartment will have approximately 35 cubic feet of usable storage space.

Y\_\_\_N\_\_\_

## **R.O.M ROLL-UP DOORS**

R.O.M Corporation brand roll-up doors shall be provided and installed on the apparatus. The door slats shall be of a double wall box frame extrusion. Exterior surface shall be flat and the interior surface shall be concave to prevent loose equipment from jamming the door. The slats will be anodized to prevent oxidation and there shall be inner-locking end shoes on every slat, secured by a punch and dimple process. The slats shall have interlocking joints with a folding locking flange. There shall be a PVC/Vinyl inner seal between each slat to prevent metal to

# Mayer Engine Body spec.

metal contact.

The track shall be of a one piece aluminum design with an attaching flange and finishing flange incorporated into its design to facilitate installation and provide a pleasing finished look without additional trim or caulking. The track shall have a replaceable side seal to resist water and dust intrusion into the compartment.

The drip rail shall be fabricated of aluminum and have a built in replaceable wiper seal. The Roll-up door shall have a 4" diameter counterbalance, to assist in lifting while eliminating the risk of accidental closing. The door shall be secured by a full width lift bar, operational by one hand with heavy gloves. The securing method will be of a positive latch device design.

## **REAR COMPARTMENT DOOR ALUMINUM SATIN FINISH**

Y\_\_N\_\_

The rear center compartment door shall be satin aluminum finish.

## **DOOR ASSIST STRAPS**

Y\_\_N\_\_

A nylon strap shall be installed on the rear body compartment door to assist in closing the door. The strap shall be attached to the door and permanently mounted to the rear wall half way between the top and bottom of the compartment.

## **DOOR OPEN INDICATOR**

Y\_\_N\_\_

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the bar is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "Door Open" indicator light in the cab to warn the crew.

## **FUEL TANK ACCESS**

Y\_\_N\_\_

There shall be a removable panel located on the interior back wall of the rear center compartment for maintenance access to the chassis fuel tank.



# Mayer Engine Body spec.

## **REAR COMPARTMENT UNISTRUT**

Y\_\_N\_\_

Horizontally mounted Unistrut shall be installed on the back wall of the rear center compartment to accommodate mounting of shelves, trays, tool boards and or other miscellaneous equipment.

## **ROLL-UP DOOR CONSTRUCTION**

Y\_\_N\_\_

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

## **R.O.M ROLL-UP DOORS**

Y\_\_N\_\_

R.O.M Corporation brand roll-up doors shall be provided and installed on the apparatus. The door slats shall be of a double wall box frame extrusion. Exterior surface shall be flat and the interior surface shall be concave to prevent loose equipment from jamming the door. The slats will be anodized to prevent oxidation and there shall be inner-locking end shoes on every slat, secured by a punch and dimple process. The slats shall have interlocking joints with a folding locking flange. There shall be a PVC/Vinyl inner seal between each slat to prevent metal to metal contact.

The track shall be of a one piece aluminum design with an attaching flange and finishing flange incorporated into its design to facilitate installation and provide a pleasing finished look without additional trim or caulking. The track shall have a replaceable side seal to resist water and dust intrusion into the compartment.

The drip rail shall be fabricated of aluminum and have a built in replaceable wiper seal. The Roll-up door shall have a 4" diameter counterbalance, to assist in lifting while eliminating the risk of accidental closing. The door shall be secured by a full width lift bar, operational by one hand with heavy gloves. The securing method will be of a positive latch device design.

## **SIDE COMPARTMENT DOORS/TRACK/TRIM/WET PAINTED**

Y\_\_N\_\_

The side compartment roll up doors, track and trim shall be wet finish painted to color match the apparatus body.

# Mayer Engine Body spec.

Y\_\_N\_\_

## **ROLL-UP DOOR PROTECTORS**

There shall be a protective cover installed under each body compartment door roll to protect the door in the rolled up position.

Each cover shall be fabricated of smooth aluminum and of natural finish.

Y\_\_N\_\_

## **DOOR OPEN INDICATOR**

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the bar is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "Door Open" indicator light in the cab to warn the crew.

Y\_\_N\_\_

## **SILL PLATES**

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

Y\_\_N\_\_

## **HOSE STORAGE**

A hose bed shall be provided and installed with a minimum of thirty (30) cubic feet of storage space available. The hose bed shall have a slotted 1/4" aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

Y\_\_N\_\_

## **HOSE BED AREA**

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.

# Mayer Engine Body spec.

The walls of the hose bed shall be 85" tall, measured from the bottom edge of the compartments to the top flange.

Y\_\_N\_\_

## **VINYL COATED NYLON HOSE BED COVER**

There shall be a hose bed cover provided and installed with the apparatus. The cover shall be held in place by extruded aluminum channel on the front and an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover on the sides. Hooks shall be provided on the sides to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum. The cover shall have a flap that extends down over the rear of the hose bed which shall be described below.

Y\_\_N\_\_

The cover shall have a flap that extends down over the rear of the hose bed which shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover. Hooks shall be provided on the lower corners to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

Y\_\_N\_\_

The hose bed cover shall be black in color.

Y\_\_N\_\_

## **HOSE BED AREA TRIMMED W/ BRUSHED SST**

The vertical corners at the back hose bed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

Y\_\_N\_\_

The top rail on the hose bed side walls shall have a trim cap fabricated of 16 gauge brushed 304L stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1" on each side of the hose bed side wall.

Y\_\_N\_\_

# Mayer Engine Body spec.

Y\_\_N\_\_

The hose bed shall accommodate the following hose loads:

<u>Qty</u>	<u>Size</u>
1000 ft of	5" LDH

One area to hold Preconnected to hosebed preconnect, 400 ft of 3" hose with a wye connector and two 150 ft of 1 3/4" hose and nozzles.

One area to hold 400 ft of 3" hose with a wye connector and two 150 ft of 1 3/4" hose and nozzles.

500 ft of 3" hose

Y\_\_N\_\_

## **HOSE BED DIVIDER(S)**

There shall be a divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of 1/4" thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner. Hose payout shall be unobstructed by the divider.

There shall be a total quantity of four (4) dividers installed in the hose bed.

Y\_\_N\_\_

## **HOSE BED DUNNAGE AREA**

A vertical bulkhead shall be provided and installed at the front of the hose bed area, just behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

Y\_\_N\_\_

## **FENDERETTES**

Two (2) polished stainless steel fenderettes shall be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

# Mayer Engine Body spec.

Y\_\_N\_\_

## TANK CAPACITY

The tank shall be 925 gallons in capacity.

Y\_\_N\_\_

## TANK LEVEL GAUGE

A Fire Research TankVision model WLA200-A00 tank indicator kit shall be installed on the apparatus. 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 be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

Y\_\_N\_\_

## ADDITIONAL TANK LEVEL GAUGE - WHELEN PSTANK

There shall be additional tank level gauge(s) mounted on the cab by the chassis manufacturer. The tank level gauge(s) shall utilize a Fire Research pressure transducer and driver to provide an accurate reading of the water tank level.

Y\_\_N\_\_

## PRO POLY POLYPRENE TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank shall extend up and over the rear center compartment to just behind the rear body wall. The water tank shall fill the void between the main hose bed floor and the top of the rear center compartment. This tank design shall provide for a lower overall tank height, resulting in a

# Mayer Engine Body spec.

lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

## Tank Construction

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

## Cover

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

## Baffles

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

## Mounting

The tank shall have a reinforced 3/4" floor for added strength and durability. The tank shall be isolated from the body substructure cross members with 1/2" x 2 1/2" rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

Y\_\_\_N\_\_\_

## **FILL TOWER**

The fill tower opening shall be approximately 13" x 12". The tower will have a 1/4" thick removable polypropylene screen and a polypropylene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 1/4" thick polypropylene screen to prevent debris from falling into the tank. The fill tower shall have a 6" overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity.

Y\_\_\_N\_\_\_

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

# Mayer Engine Body spec.

Y\_\_N\_\_

## SUMP

The sump will be constructed in an 8.0" wide x 8.0" long x 3.0" deep area. The construction material shall utilize 1/2" polyprene and be located in line with the tank suction valve. There shall be a 4" schedule 40 polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2" above the sump.

Y\_\_N\_\_

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

Y\_\_N\_\_

## OUTLETS

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

Y\_\_N\_\_

## DUAL ARM ELECTRIC LADDER RACK

A "Smart" dual arm electric ladder rack shall be installed above the side compartments as specified. A safety latch shall be installed to secure the ladder rack in the stowed position. The 12 volt powered actuated rack shall incorporate two arms, one on the forward face of the body and one on the rear of the body. A spring loaded quarter turn latch shall be installed to secure the ladders on the rack when it is in any position.

Flashing LED warning lights shall be installed on the front and rear of the ladder rack system, warning personnel the system is out of the stowed position. An interlock system shall be installed permitting operation only when the ignition is turned on and the park brake is set, and any obstructing compartment doors are closed.

The switch to operate the ladder rack shall be installed in a location that will allow the operator to view the ladder in both raising and lowering modes. The ladder rack shall also be switched to the "Open Door Indicator Light" in the cab to alert the driver if the rack is not in the stowed position.

The ladder rack shall be constructed with hot rolled steel and finish painted to color match the apparatus body.

# Mayer Engine Body spec.

The ladder rack shall be located centered on right side of the apparatus body and shall accommodate mounting of the following:

Y\_\_N\_\_

-One (1) 14 foot aluminum roof ladder.

Y\_\_N\_\_

-One (1) 35 foot three section aluminum Duo-Safety extension ladder.

- One (1) 24 foot two section aluminum Duo-Safety extension ladder.

## **PIKE POLE STORAGE**

Y\_\_N\_\_

Two (2) pike poles shall be mounted on the ladder rack with tulip clip brackets for easy pop-in and out access.

## **FOLDING LADDER STORAGE**

Y\_\_N\_\_

One (1) folding ladder shall be mounted on the ladder rack with two rubber draw latches one on each end of the ladder.

## **SUCTION HOSE STORAGE**

Y\_\_N\_\_

A rack sized to hold 6 inch x 10 foot hose constructed of anodized aluminum for a durable, long lasting finish shall be provided and located as follows:

One (1) located on the left side above the apparatus compartments.

Y\_\_N\_\_

One (1) located on the hydraulic ladder rack selected with the body.

Y\_\_N\_\_



# Mayer Engine Body spec.

Y\_\_N\_\_

## OVER-WHEEL COMPARTMENT PARTITIONS (dual sides)

Compartment partitions, fabricated of the same material as the body, shall be welded in place in both left and right side over-wheel compartments flush to the forward and rearward frame openings.

These partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

Y\_\_N\_\_

## SHELVING

Each shelf shall be fabricated of 3/16" thick aluminum sheet material with the outside and inside edges flanged up to prevent equipment from sliding off. Each shelf shall be as wide as possible to allow proper attachment to uni-strut channels. Each shelf shall be adjustable up and down.

The following shall be provided:

Y\_\_N\_\_

A {25.5"} deep shelf shall be supplied and installed in the compartment. Each shelf shall be as wide as possible and there shall be a total quantity of eight (8).

Y\_\_N\_\_

Each shelf or tray shall be covered with (black) Turtle Tile for durability and a pleasing appearance.

Y\_\_N\_\_

- Two (2) located in the L-1 compartment.

Y\_\_N\_\_

- One (1) located in the L-2 compartment.

Y\_\_N\_\_

- Two (2) located in the R-1 compartment.

# Mayer Engine Body spec.

- One (1) located in the R-2 compartment.

Y\_\_N\_\_

- Two (2) located in the R-3 compartment.

Y\_\_N\_\_

## **ROLL OUT TRAY/AUSTIN**

Each tray shall be fabricated of 3/16" thick 3003 grade or higher aluminum with four 3" side flanges; corner welded for maximum strength. Each tray shall be as wide and deep as the door allows and secured to (Austin Hardware) "heavy duty" slide assemblies.

Y\_\_N\_\_

The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out (FDR) front drawer release system.

The following shall be provided:

A {300#} capacity tray with {100%} extension shall be installed to the compartment floor. There shall be a total quantity of four (4).

Y\_\_N\_\_

Each shelf or tray shall be covered with (black) Turtle Tile for durability and a pleasing appearance.

Y\_\_N\_\_

- One (1) located in the L-1 compartment.

Y\_\_N\_\_

- One (1) located in the R-1 compartment.

Y\_\_N\_\_

- One (1) located in the R-3 compartment.

Y\_\_N\_\_

# Mayer Engine Body spec.

- One (1) located in the rear center compartment.

Y\_\_\_N\_\_\_

## **PULL-OUT TOOL BOARD/ALUMINUM**

An aluminum pull-out tool board shall be installed in the compartment as specified. The tool board shall be attached to uni-strut material mounted on the floor and ceiling of the compartment, extending perpendicular to the rear wall, allowing for horizontal adjustment from front to rear.

Y\_\_\_N\_\_\_

The tool board shall be mounted on ball bearing slides, top and bottom. A locking device shall be installed on the lower slide to keep the board in the stored and extended positions.

There shall be a total quantity of three (3).

- Three (3) located in the L-3 compartment.

Y\_\_\_N\_\_\_

The pull-out/swing-out style tool board, shall have RED reflective striping installed making the perimeter of the tool board more readily visible.

Y\_\_\_N\_\_\_

## **SIDE RUB RAILS (ALUMINUM CHANNEL)**

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

Y\_\_\_N\_\_\_

The rub rails shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with ½" nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

# Mayer Engine Body spec.

Y\_\_N\_\_

## REAR RUB RAIL (ALUMINUM CHANNEL)

The rearward edge of the rear step shall be trimmed with brightly anodized aluminum channel rub rail.

The rub rail shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rail shall not be constructed as an integral part of the apparatus body structure, allowing the rub rail to be easily removed in the event of damage.

The rub rail shall be secured with stainless steel fasteners and spaced away from the edge of the rear step with ½" nylon spacers, to help absorb moderate rear impacts and prevent the collection of water and debris for easier cleaning.

Y\_\_N\_\_

## OVERLAYS

The entire front face of the apparatus body shall have brushed stainless plate overlays installed.

The entire rear face of the apparatus body shall have raw stainless steel overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

Y\_\_N\_\_

The front of the apparatus body vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.0" x 1.0" corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

Y\_\_N\_\_

The rear face of the apparatus body, vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.0" x 1.0" corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

# Mayer Engine Body spec.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

Y\_\_N\_\_

## CATWALKS

The catwalks shall be constructed with materials of a non-slip 1/8" embossed aluminum diamond plate, meeting the minimum NFPA standard requirements for slip resistance.

Y\_\_N\_\_

## RESCUE WINCH RECEIVER

A rescue winch receiver shall be installed on the front of the apparatus. The receiver shall be mounted directly to the chassis frame rails and have a 2" square opening for the attachment of a portable rescue winch. The receiver shall have a maximum straight line pull capacity equaling 9000 pounds. A label shall be permanently affixed on or near the winch receiver indicating the maximum straight line pull rating of the anchor.

Y\_\_N\_\_

A power receptacle shall be installed adjacent to the rescue winch receiver and wired for a portable electric winch.

Y\_\_N\_\_

## RAMSEY QM 9000 WINCH

A Ramsey winch with 4.4 HP motor operating of 12 Volt DC. Three-stage planetary gear system and 138:1 gear reduction ratio for line intake. Automatic load-holding brake. Cam action clutch for free spooling. Weather-shielded solenoids and Hawse fairlead. Includes 105' x 5/16 in. galvanized aircraft cable, 12' pendant remote and battery cable lead with connector. Anti-theft locking pin attached. Model QM9000.

Y\_\_N\_\_

## RESCUE WINCH RECEIVER

Y\_\_N\_\_

## RESCUE WINCH RECEIVER

# Mayer Engine Body spec.

There shall be a rescue winch receiver tube located in line with the rear tow eyes below the body, behind the rear axle on the left and right side. The receiver tube shall have a 2” square opening to allow a portable rescue winch to be installed. The maximum pull capacity equals 9000 pounds straight pull. There shall be a label placed on or near the winch receiver tube stating the maximum load rating of the tie off tube.

A receptacle shall be supplied adjacent to the rescue winch receiver tube and wired for a portable electric winch.

Y\_\_\_N\_\_\_

## **FOLDING STEP**

CPI illuminated folding step(s) shall be installed on the body as directed by the department or required per NFPA. The top of the stepping surface shall have a knurled finish and an LED light that illuminates the stepping surface. An additional light shall be provided on the step mounting bracket to illuminate the area under the step.

Y\_\_\_N\_\_\_

One (1) folding step shall be installed on the right rear vertical face of the body.

Y\_\_\_N\_\_\_

One (1) 10" long x 1 1/4" diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert shall be installed in a best fit location above the rearward step(s) to assist in climbing the steps and in accordance with the current edition of NFPA 1901 standard requirements. There shall be a 2" minimum clearance between the bracket and the body.

Y\_\_\_N\_\_\_

Four (4) folding steps shall be installed on the left forward wall of the front compartment. These steps shall be utilized to access the water tank fill tower of the apparatus. The steps shall also be utilized to gain access to the top of the pump compartment structure and any equipment located in the immediate vicinity.

Y\_\_\_N\_\_\_

One (1) 10" long x 1 1/4" diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert shall be installed in a best fit location above the forward step(s) to assist in climbing the steps and in accordance with the current edition of NFPA 1901 standard requirements. There shall be a 2"

# Mayer Engine Body spec.

minimum clearance between the bracket and the body.

Y\_\_N\_\_

## **INTERMEDIATE REAR STEP**

The rear step shall be eight (8) inches in depth and shall span the entire width of the [rear hose bed](#) area between the body sides. The step shall be constructed of a 7" wide piece of "Diamondback" grip material spaced away from the back of the body 1" to provide an 8" deep stepping surface. The step shall be mounted on the flat back of the apparatus with gusset-type mounting to provide sufficient support for loading and deploying hose and for gaining access to the hose bed area.

The stepping surface shall be constructed of aluminum diamond "Grip Strut" materials to meet the minimum NFPA 1901 standard requirements for slip resistance.

Y\_\_N\_\_

One (1) light(s) shall be installed to illuminate the stepping areas as provided. Each light shall be a LED Tube light model #RX-15T16-5050-21CM with an aluminum mounting bezel. Each light shall be directed towards and positioned above the stepping surfaces.

Y\_\_N\_\_

## **"SMART" ALUMINUM ACCESS LADDER**

A "Smart" aluminum fold down access ladder shall be provided at the rear of the apparatus. The ladder rungs shall be constructed of a slip resistant stepping material.

The upper section shall be permanently secured to the body with a mechanical style hinge and fasteners that allow the ladder to extend down and out to the ground from the apparatus body. When deployed, the fold-down steps shall create a safe and comfortable climbing angle.

Two (2) gas cylinders shall be installed to assist in the deployment of the lower fold-down section. A mechanical locking mechanism shall be provided to retain the ladder in a stowed and secured position when in transit or when not in use. Access ladder rung illumination shall be provided during low light conditions.

[Two \(2\) handrails shall be 1 1/4" in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert. There shall be a 2" minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail that has been determined by the department and in accordance with the current edition of NFPA 1901 standard requirements.](#)

# Mayer Engine Body spec.

The following handrails shall be installed at the sides of the ladder:

The ladder shall be installed at the rear of the apparatus on the left (driver's) side **as far outboard as possible**.

Y\_\_N\_\_

One (1) LED Tube light(s) model #RX-15T16-5050-21CM with an aluminum mounting bezel shall be installed and positioned to illuminate the access ladder stepping area.

Y\_\_N\_\_

## **KNURLED ALUMINUM ILLUMINATED HANDRAILS**

Y\_\_N\_\_

All handrails shall be 1 1/4" in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert. There shall be a 2" minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail that has been determined by the department and in accordance with the current edition of NFPA 1901 standard requirements.

The following handrails shall be installed at the approximate lengths noted:

Two (2) hand rails installed on the rear of the apparatus. Each hand rail shall provide approximately 42 inches of gripping area for personnel.

Y\_\_N\_\_

Each handrail shall be constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert. There shall be a 2" minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail that has been determined by the department and in accordance with the current edition of NFPA 1901 standard requirements.

One (1) vertical hand rails shall be installed, on right side, just below the hose bed sides. The remaining hand rail shall be installed horizontally, just below the hose bed area **on the rear face of the intermediate step**.

## **TOW EYES**

Y\_\_N\_\_



# Mayer Engine Body spec.

There shall be two rear tow eyes installed to the frame rails, one each side, accessible below the rear center compartment. They shall be manufactured of 1" plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of (6) grade 8 bolts. The two plates shall be anchored together with 1" steel tubing to prevent swaying of the frame rails during a towing operation.

Y\_\_N\_\_

## LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the NFPA 1901 standard guidelines.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted.**

Y\_\_N\_\_

## NODE

An electrical distribution node or relay shall be installed and located as high as possible on the interior of the most rearward compartments on each side of the apparatus body.

Full depth body compartmentation designs shall have the node mounted to the back wall and run parallel front to back of the apparatus.

# Mayer Engine Body spec.

Half depth compartment ion designs shall have the node mounted to the back wall and run parallel front to back of the apparatus.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16 to 22” in length and shall match the compartments interior finish. Node covers will not include any type of shelf mounting structure and shall limit the height of uni-strut or shelf height within the compartments.

Y\_\_N\_\_

## **LED DOT LIGHTING**

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus, for use as identification lamps. Two (2) lights shall be located on the rear, one each side and two (2) lights on the sides facing the side, for use as clearance lamps.

If the apparatus is 30' or longer there shall be two (2) amber intermediate turn signals and two (2) amber intermediate marker lights on the sides of the apparatus (one (1) each per side) between the front and rear axles.

The lights shall be Weldon brand 9186-1500 series LED red and amber markers.

Y\_\_N\_\_

## **LED REAR TAIL LIGHT WARNING CLUSTER**

There shall be a Whelen, LED rear tail lights provided and installed in individual polished bezels on the rear of the apparatus, on each side. The lights shall consist of the following specified components:

- 1 - Whelen #60 LED series amber turn signal light populated in the shape of an arrow
- 1 - Whelen #60 LED red brake light
- 1 - Whelen #60 LED clear backup light
- 1 - 4X6 spot for the warning lamp specified below

Y\_\_N\_\_

## **BACKUP LIGHTS**

The backup lights shall illuminate when the apparatus is placed in reverse.

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Y\_\_N\_\_

## PUMP COMPARTMENT WORK LIGHT

One (1) LED Tube light(s) model #RX-15T16-5050-21CM shall be installed in the pump compartment module to illuminate the piping and plumbing components. The light(s) shall be activated by a weather resistant toggle switch.

Y\_\_N\_\_

## LED COMPARTMENT LIGHTING

Two (2) LED Tube lights model #RX-15T16-5050 shall be installed in each body compartment. The tube lights shall be centered vertically along each side of the door framing.

Y\_\_N\_\_

The lights in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors.

Y\_\_N\_\_

## PERIMETER LIGHTS

There shall be four (4) LED underbody perimeter lights provided and installed in addition to the chassis provided lights. One, (1) under each side of the front of the body, and two (2) under the rear step to illuminate the ground around the truck.

Lighting designed to provide illumination under the cab step areas shall be of a switch-able design although, activate automatically when the exit doors are opened. All other ground area lighting shall be of the standard switch-able design.

They shall be manufactured by Trucklite and be model # 44308C.

Y\_\_N\_\_

## UPPER LIGHTING PACKAGE

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

Y\_\_N\_\_

The lightbar(s) shall be supplied with the chassis.

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ZONE C: There shall be two (2) Whelen model L31HRFN beacons with 360 degree LED lights, provided and installed on the apparatus.

Y\_\_N\_\_

One (1) each side on the rear upper outboard corners of the apparatus.

## **CAST ALUMINUM LIGHT STANCHIONS**

Y\_\_N\_\_

Two light stanchions shall be mounted in the upper rear corners of the body sides, one each side. Each shall be large enough to accommodate an upper zone C rotating beacon and a hose bed light if specified. The DOT lights specified elsewhere in the quote shall also be located one on the side and the other located on the rear of each stanchion.

## **LOWER LED WARNING LIGHTING**

Y\_\_N\_\_

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

ZONE A: The warning lights shall be provided with the chassis.

Y\_\_N\_\_

ZONES B&D: There shall be four (4) Whelen model 60R02FCR 4"x6" flashing red LED lights with clear lenses and chrome bezels, provided and installed with the apparatus.

Y\_\_N\_\_

Two (2) on each side, in addition to the chassis provided.

ZONE C: There shall be two (2) Whelen model 60R02FCR 4"x6" flashing red LED lights with clear lenses and chrome bezels, provided and installed on the rear of the body.

Y\_\_N\_\_

Lower Zones B&D NO Light Housing

Y\_\_N\_\_

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Y\_\_N\_\_

## **REAR VIEW CAMERA SYSTEM**

A chassis supplied camera shall be surface mounted on the center rear of the apparatus body for maximum viewing capability. A protective shroud shall be installed over the system to protect against damage.

Y\_\_N\_\_

## **LED HOSE BED SPOT AND FLOOD LIGHTS**

There shall be two (2) 6" inch (152mm) diameter LED rear decklights, one spot and one flood, provided and installed at the rear of the apparatus.

Y\_\_N\_\_

## **12 VOLT SCENE LIGHTS**

There shall be six (6) Fire Research Spectra LED flood and loading model #SPA900-Q65 surface mounted scene light(s) installed. The light(s) shall have twenty-four (24) white LEDs and operate at 12/24 volts and generate 4600 lumens of light.

Y\_\_N\_\_

The lamp head housing shall be aluminum with chrome colored bezel.

Y\_\_N\_\_

The scene lights shall be located on the side of the body, two (2) on each side, one (1) at the front and one (1) at the rear corner of the body side walls.

Y\_\_N\_\_

The scene light(s) shall be activated by a switch on the rocker switch panel and by a weather resistant switch on the pump panel.

Y\_\_N\_\_

The scene lights shall be located on the rear of the body, one (1) each side.

# Mayer Engine Body spec.

The scene light(s) shall be activated by a switch on the rocker switch panel and by a weather resistant switch on the pump panel.

Y\_\_N\_\_

The scene light(s) shall be activated when the apparatus transmission is shifted into reverse.

Y\_\_N\_\_

## **SMART POWER HYDRAULIC 15,000 WATT GENERATOR**

One (1) Smart Power Hydraulic Driven Generator rated at 15,000 watts.

Y\_\_N\_\_

## **UL TESTING 110/220-VOLT & GENERATOR**

The apparatus electrical and generator system shall be tested and UL certified.

Y\_\_N\_\_

## **SMART POWER HYDRAULICALLY DRIVEN GENERATOR**

Smart Power model HR 120/240VAC, 60Hz, 1-phase hydraulic generator shall be provided. The generator tray assembly, including reservoir, shall be delivered in a one-piece module with the cooler/fan assembly mounted such that the hot air is exhausted straight up through an NFPA approved walking grate.

Y\_\_N\_\_

The generator system shall come with a standard 5-year/1,000 hour fully transferable warranty from the manufacturer.

The unit shall come complete with: generator tray assembly (which includes the generator, hydraulic motor, cooler/fan assembly, electronics package, 10 micron spin-on fluid filter and reservoir), axial piston hydraulic pump with pressure compensated control, and Command and Control Center (CCC) display with all required wiring harnesses.

The CCC shall be an interactive operator control center, equipped with smart touch solid-state buttons, with displays for voltage, frequency, amperage, hour meter, service reminders, operator warnings, system faults and diagnostics. Standard electronics package shall include smart start engagement to reduce mechanical stress (enables generator startup at any RPM), precise voltage and frequency control to maintain frequency control within a 0.2 Hz range, cold start protection system, automatic load and temperature compensation, integrated diagnostics system, and other

# Mayer Engine Body spec.

automated control features to protect system, vehicle and operator.

The generator shall be a commercial type with 2 heavy-duty bearings to ensure exact rotor alignment and of brush-less design to ensure low maintenance. The integrated reservoir shall be equipped with an oil level sight gauge, fill cap and electronic fluid level sensor, which will display a low oil level condition on the CCC display.

The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO). The system shall be capable of producing the full rated power when driven from the vehicle PTO from idle to maximum engine speed. Generator shall make full rated power while vehicle is stationary or in motion. The system shall be capable of normal operation using a commonly available ATF fluid, such as Dexron III or equivalent.

The system shall be designed and assembled by a company with no less than 10 years experience in the manufacture of hydraulic driven generators. The system shall be tested for a full 2 hours prior to shipping and be accompanied with a test report. The generator shall be tested at 500-1000 watt increments from no load to full load to ensure reliable power delivery at all load levels.

Y\_\_N\_\_

## **HOT SHIFT PTO**

A 'hot' shift shall be added to the hydraulic generator installation.

The PTO shall remain 'engaged' to keep fluid circulating through the system. A guarded switch shall be located on the cab dash or other operator accessible area in the cab. The switch shall be used to disconnect the PTO from the transmission in the event of hydraulic failure (broken hose, etc) during operation.

The switch shall be labeled "GENERATOR EMERGENCY STOP".

A second switch with an indicator light shall be provided to excite the generator. The switch shall be labeled "GENERATOR EXCITE".

Y\_\_N\_\_

The generator excite application shall be activated by a rocker switch located on the cab dash or other operator accessible area in the cab.

Y\_\_N\_\_

## **LOCATION**

# Mayer Engine Body spec.

The unit shall be located in the hose bed area near the front of the apparatus above the water tank.

Y\_\_N\_\_

## **GENERATOR DISPLAY**

A FROG (Frequency Regulation of Generator) generator display kit shall be installed to monitor a 50/60 Hz, generator.

The kit shall include:

- (1) Display module.
- (1) Voltage transformer.
- (2) Current transformers and cables.

The display module shall consolidate five (5) generator monitoring instruments into one device. The display case shall be waterproof and have dimensions not to exceed 4 1/4" high by 4 1/4" wide by 3 1/4" deep.

The following continuous displays shall be provided with super bright LED digits more than 1/2" high:

- Generator frequency in hertz
- Line 1 current in ampere
- Line 2 current in amperes
- Generator voltage in volts

The program shall support the accumulation of elapsed generator hours and the monitoring of hydraulic oil temperature. Generator hours and oil temperature shall be displayed at the push of a button. Audible warning alarm outputs are provided for generator overload, over/under voltage fluctuations, and high oil temperature.

Y\_\_N\_\_

## **GENERATOR DISPLAY LOCATION**

The display shall be installed on the pump operator's gauge panel.

Y\_\_N\_\_

## **LOAD CENTER**

There shall be an electrical load center furnished and installed in a protected environment. The



# Mayer Engine Body spec.

load center shall have provisions for eight (8) 20 amp manual reset type circuit breakers.

Y\_\_N\_\_

The load center shall be surface mounted to the upper -outward facing- back wall of the L1 compartment. The box shall be located as far forward to the bulkhead wall of the L1 compartment as possible.

Y\_\_N\_\_

## **GENERATOR POWERED OUTLETS**

The following specified outlets shall be provided and installed on the apparatus; and be live when the generator is in operation:

Y\_\_N\_\_

Two (2) NEMA L5-20 120V/20A single receptacle with weather resistant cover shall be located as specified below:

Y\_\_N\_\_

- One (1) in the wheel well area on the driver's side of the apparatus.

Y\_\_N\_\_

- One (1) in the wheel well area on the passenger's side of the apparatus.

Y\_\_N\_\_

One (1) NEMA L6-30 240V/30A twist lock single receptacle with weather resistant cover shall be located as specified below:

Y\_\_N\_\_

- One (1) in the rear center compartment of the apparatus body.

Y\_\_N\_\_

## **GENERATOR AND SHORELINE POWERED OUTLETS**

The following specified outlets shall be provided and installed on the apparatus; and be live when the generator is in operation or when shoreline power is provided:

# Mayer Engine Body spec.

Three (3) NEMA 5-20, 120V/20A, duplex receptacle with weather resistant cover shall be located as specified below:

Y\_\_\_N\_\_\_

- One (1) inside the chassis cab behind the driver's seat.

Y\_\_\_N\_\_\_

One (1) PLUGLOCK-PFP circuit-breaker protected locking outlet strip provides enough wall spacing for five bulky transformers and can be safely mounted out of sight.

Y\_\_\_N\_\_\_

Secure clamping design "locks" your transformers and conventional plugs in place, ensuring you never get disconnected from your power source. Adjustable clamps accommodate transformers and plugs from 0.4" to 2.1" above outlet.

The sturdy, all steel construction and heavy-duty 5-foot (14 AWG) three-conductor cord provide ultimate durability and longevity.

- One (1) inside the chassis cab behind the officer's seat.

Y\_\_\_N\_\_\_

One (1) PLUGLOCK-PFP circuit-breaker protected locking outlet strip provides enough wall spacing for five bulky transformers and can be safely mounted out of sight.

Y\_\_\_N\_\_\_

Secure clamping design "locks" your transformers and conventional plugs in place, ensuring you never get disconnected from your power source. Adjustable clamps accommodate transformers and plugs from 0.4" to 2.1" above outlet.

The sturdy, all steel construction and heavy-duty 5-foot (14 AWG) three-conductor cord provide ultimate durability and longevity.

- One (1) on the forward wall, inside the right front (R1) body compartment.

Y\_\_\_N\_\_\_

# Mayer Engine Body spec.

One (1) PLUGLOCK-PFP circuit-breaker protected locking outlet strip provides enough wall spacing for five bulky transformers and can be safely mounted out of sight.

Y\_\_N\_\_

Secure clamping design "locks" your transformers and conventional plugs in place, ensuring you never get disconnected from your power source. Adjustable clamps accommodate transformers and plugs from 0.4" to 2.1" above outlet.

The sturdy, all steel construction and heavy-duty 5-foot (14 AWG) three-conductor cord provide ultimate durability and longevity.

## WILL-BURT (HORIZONTAL MOUNTED)

Y\_\_N\_\_

## LIGHT TOWER

Y\_\_N\_\_

A Will-Burt Nightscan Series, model number [NS4.5- 9000 OPT with Green strobe light](#) shall be provided and installed on the apparatus. The horizontal surface mounted tower shall be raised electrically and pneumatically.

Six (6)FRC 1500 Watt Optimum floodlight lampheads shall be provided on the floodlight tower assembly, for a total light output of [9000](#) watts. Each lamphead shall have a one (1) field replaceable high intensity Halogen Infrared [1500](#) watt, 220-volt bulb producing [?](#) lumens.

The rectangular die cast light fixture shall measure 4.88 inches (123.9 millimeters) deep, 5.31 inches (134.8 millimeters) high and 13.5 inches (342.9 millimeters) wide. Wiring to the floodlight assemblies shall be concealed to the remote control positioner.

### **Operation**

The tower operation area shall be illuminated automatically by a look up light whenever the tower is in operation. Any upward movement of the tower from the nested position shall energize a red warning light in the cab and a secondary light located at the tower control area. In addition, the installer shall provide parking brake interlocks and other equipment as required by applicable NFPA standards.

### **Design and Construction**

# Mayer Engine Body spec.

The tower shall have an extended height of approximately 10/15 feet (3.0/4.5 meters) above the mounting location and a travel height of approximately 13-1/2" (342.9 millimeters) above the mounting surface. The tower shall be designed to sustain the intended top load with a 125 percent safety factor and shall withstand a maximum 65 miles/hour (104 kilometers/hour) wind when in a fully raised and unguided position. The tower shall be of a compact design with a total weight of approximately 180 pounds (81.65 kilograms).

The tower tubular sections shall be constructed of high strength, heat-treated 6061 T6 aluminum tubes and collars. Each tube and collar shall be protected by low friction synthetic bearings for smooth operation and long life. Bumpers shall be designed to reduce shock on extension and retraction. All exterior surfaces shall be anodized and sealed for long life and fasteners shall be stainless steel for corrosion resistance.

## **Nesting System**

The tower shall have an "auto-stow" function. A double click of the mast down button will stow, retract, and automatically shut power off to the unit. An integrated saddle assembly with cushioned rests shall be provided for the tower and flood light assembly in the nested position.

## **Floodlight Rotation and Tilt Operation**

The tower shall be equipped with a Will Burt Model RCP (remote control positioner) to control the rotation and direction of the lights. The remote control positioner unit shall be equipped with three (3) gear motors; one for rotation and two for individual positioning of each floodlight bank. One (1) motor for left side tilting and one (1) motor for right side tilting.) This feature shall be designed so that the lighting may be directed in two separate locations simultaneously for enhanced safety and functionality. The positioner shall also rotate the floodlight assembly from zero to 350 degrees.

## **Labeling and NFPA Compliance**

Essential operating instructions and warning labels shall be provided in compliance to applicable OSHA, SAE, and NFPA standards. Appropriate labels on the "hazards of electrocution" associated with the operation of a light tower shall be installed in the appropriate areas.

A label shall be provided at the operator's position by the installer with the following information:

1. Extended height of the tower from the ground.
2. Bulb replacement data

# Mayer Engine Body spec.

The tower and installation shall be in full compliance to applicable sections of the current NFPA 1901 Standard.

## **Warranty**

The tower assembly shall carry a manufactures two (2) year parts and labor warranty.

The light tower shall be installed on the top of the chassis cab.

Y\_\_N\_\_

A guard shall be installed around the front and sides of the light tower. The guard shall be manufactured from smooth aluminum and be painted to color match the top of the apparatus cab chassis. The front of the guard shall be angled to 60 degrees and shall extend 2-1/2 inches above the light tower while in the nested position.

Y\_\_N\_\_

## **CONTROL KIT**

Y\_\_N\_\_

One (1) wired NFPA compliant pistol grip Hand Held Remote Controller (HHRC) kit with one (1) white Junction-Box shall be provided and installed on the apparatus.

Y\_\_N\_\_

Located on the forward wall of the R-1 compartment.

Y\_\_N\_\_

## **ELECTRIC REWIND CORD REEL**

Y\_\_N\_\_

One (1) Hannay model #ECR-1616-17-18 series electric rewind cord reel(s) shall be installed on the apparatus as specified.

Y\_\_N\_\_

There shall be a four way roller assembly provided and installed to guide the cord on and off of the spool to prevent chafing on the body or opening. There shall also be a cord stop supplied.

# Mayer Engine Body spec.

The reel shall come equipped with 200 feet of yellow 10-3 electrical cord.

A weather resistant push button switch to activate the rewind shall be located next to the reel. The switch shall be labeled "CORD REEL".

Y\_\_N\_\_

The cord shall be hardwired to a Circle D remote power distribution box with (4) four NEMA 5-20 single receptacles. The distribution box shall be stored in a mounting bracket when not in use. The box shall be equipped with a light to indicate when distribution box is energized.

The distribution box shall be equipped with the following receptacles:

Position 1: NEMA 5-20 R

Position 2: NEMA 5-20 R

Position 3: NEMA 5-20 R

Position 4: NEMA 5-20 R

Y\_\_N\_\_

One (1)B-1 Rear center compartment [Located above the two Hydraulic reels in B1 compartment.](#)

## HYDRAULIC REEL

Y\_\_N\_\_

There shall be two (2) Hannay electric rewind hydraulic hose reel(s) provided and installed on the apparatus. Each reel shall have a push button rewind switch mounted with a 4 way roller assembly. Each reel shall have the capacity of 100 feet of hose.

Y\_\_N\_\_

There shall be a four way roller assembly provided and installed to guide the cord on and off of the spool to eliminate chafing on the body or opening.

Y\_\_N\_\_

Parker brand hose shall be supplied that is compatible with the Hurst Tool System. It shall be 100 feet long, 1/4" twin hydraulic with a 10,500 psi (720 bar) rating.

Also supplied shall be two (2) couplers with locking rings and rubber dust plugs, two (2) nipples with rubber dust caps and two (2) 8 ft long lead in hoses of the same rating.

# Mayer Engine Body spec.

Two (2)B-1 Compartment

Y\_\_N\_\_

## **REFLECTIVE STRIPING**

There shall be a 6" inch reflective Scotchlite stripe with a two (2) 1" accent stripes applied to the chassis and apparatus body as specified:

Y\_\_N\_\_

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

Y\_\_N\_\_

The reflective striping shall be.... 1" Gold Leaf , 6" Black reflective, 1" Gold Leaf

Y\_\_N\_\_

## **RETROREFLECTIVE CHEVRON STRIPING**

There shall be diamond grade retroreflective chevron striping applied prior to applying the accessories on the rear of the apparatus.

Y\_\_N\_\_

The retroreflective chevron striping shall be red and yellow in color.

Y\_\_N\_\_

## **LICENSE PLATE MOUNTING**

A Cast Products, model LP0004-1-A, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate proper lighting (Incandescent Truck-Lite) provisions to illuminate the license plate to meet DOT requirements.

Y\_\_N\_\_

Y\_\_N\_\_

# Mayer Engine Body spec.

Y\_\_N\_\_

## **MISCELLANEOUS EQUIPMENT**

The following equipment list shall be provided with the completed apparatus.

Y\_\_N\_\_

## **ZICO WHEEL CHOCKS**

One (1) set(s) of NFPA compliant Ziamatic folding wheel chocks model # SAC-44-E shall be supplied with the apparatus.

Y\_\_N\_\_

## **ZICO WHEEL CHOCK MOUNTING BRACKETS**

One (1) set(s) Ziamatic folding wheel chock underbody horizontal mounts model #SQCH-44-H shall be installed on the apparatus under the body in front of the rear wheels.

Y\_\_N\_\_

## **FLARES**

All NFPA required flares will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

## **TRAFFIC CONES**

All NFPA required traffic cones will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

Y\_\_N\_\_

## **TRAFFIC VEST**

Y\_\_N\_\_



# Mayer Engine Body spec.

All NFPA required traffic vest will be supplied and installed by the Customer before the truck is placed into service. Y\_\_N\_\_

## GROUND LADDERS

Y\_\_N\_\_

One (1) Duo-Safety 35' three (3) section aluminum extension ladder(s), model 1225A

Y\_\_N\_\_

One (1) Duo-Safety 24' two (2) section aluminum extension ladder(s), model 900A

Y\_\_N\_\_

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

Y\_\_N\_\_

One (1) Duo-Safety 10' aluminum attic ladder(s), model 585A

Y\_\_N\_\_

There shall be a Little Giant model 13 type 1A 6005-T5 aluminum ladder with patented triple-locking hinges, and 300lb capacity provided with the apparatus. There shall be a total quantity of one (1)

Y\_\_N\_\_

## DUO SAFETY PIKE POLES

Y\_\_N\_\_

## DUO SAFETY PIKE POLES

Y\_\_N\_\_

One (1) Duo-Safety 12' pike pole(s) with fiberglass handle

Y\_\_N\_\_

# Mayer Engine Body spec.

One (1) Duo Safety 8' pike pole(s) with fiberglass handle Y\_\_N\_\_

One (1) Duo-Safety 6' pike pole(s) with fiberglass handle(s) Y\_\_N\_\_

One (1) Duo-Safety 4' pike pole(s) with fiberglass handle and D-handle. Y\_\_N\_\_

**HARD SUCTION HOSE** Y\_\_N\_\_

Two (2)10' lengths of 6" clear PVC suction hose with lightweight couplings shall be supplied and installed on the apparatus.

**SALVAGE COVERS** Y\_\_N\_\_

All NFPA required salvage covers will be supplied and installed by the Customer before the truck is placed into service. Y\_\_N\_\_

**EXTINGUISHERS** Y\_\_N\_\_

Y\_\_N\_\_

One (1) 20 lb Amerex ABC Extinguisher(s) shall be supplied with the apparatus. Y\_\_N\_\_

Y\_\_N\_\_

# Mayer Engine Body spec.

One (1) 20 lb Extinguisher(s) shall be mounted on the specified apparatus in the noted location(s).

Y\_\_N\_\_

The one (1) extinguisher(s) shall be mounted in the left front compartment.

Y\_\_N\_\_

One (1) 20 lb Amerex CO2 Extinguisher(s) shall be supplied with the apparatus.

Y\_\_N\_\_

One (1) 20 lb Extinguisher(s) shall be mounted on the specified apparatus in the noted location(s).

Y\_\_N\_\_

The one (1) extinguisher(s) shall be mounted in the left front compartment.

Y\_\_N\_\_

## **RECHARGEABLE FLASHLIGHTS**

Y\_\_N\_\_

A hand held Streamlight LiteBox rechargeable lantern, model #45107 (8WS) with shoulder strap and charge rack shall be installed on the apparatus.

There shall be a total quantity of three (3).

Y\_\_N\_\_

A total of three (3) light(s) shall be mounted in the crew area of the cab.

Y\_\_N\_\_

## **AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)**

Y\_\_N\_\_

All NFPA required AED will be supplied and installed by the Customer before the truck is placed into service.

# Mayer Engine Body spec.

## FIRST AID KIT

Y\_\_N\_\_

All NFPA required First Aid Kit will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

## AXES

Y\_\_N\_\_

All NFPA required Axes will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

## WRENCH SETS

Y\_\_N\_\_

Two (2) Storz wrench sets containing four (4) universal storz wrenches with mounting bracket shall be supplied with the apparatus.

Y\_\_N\_\_

Three (3) South Park ##WH76301A spanner wrench sets containing two (2) universal spanner wrenches and one (1) hydrant wrench with mounting bracket shall be supplied with the apparatus.

Y\_\_N\_\_

Three (3) wrench set(s) shall be mounted on the specified apparatus in the noted location(s).

Y\_\_N\_\_

The two (2) spanner wrench(s) shall be install in the left pump operator's panel.

Y\_\_N\_\_

# Mayer Engine Body spec.

The one (1) spanner wrench(s) shall be installed in the **right** pump operator's panel.

Y\_\_N\_\_

The two (2) spanner wrench(s) shall be installed in the right rear compartment face.

Y\_\_N\_\_

## **NOZZLES**

All NFPA required nozzles will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

Y\_\_N\_\_

## **CROW BAR**

All NFPA required crowbars will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

Y\_\_N\_\_

## **RUBBER MALLET**

All NFPA required rubber mallets will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

Y\_\_N\_\_

## **STRAINERS**

One (1) Kochek Model #LL60 strainer for drafting in low water conditions shall be provided. The strainer shall be constructed from aluminum with K-Coat finish and an internal screen and incorporated jet siphon. The strainer shall be provided with a 6" NST female long handle coupling.

Y\_\_N\_\_

# Mayer Engine Body spec.

## SUPPLY HOSE

Y\_\_N\_\_

## 5" HIGH VOLUME HOSE

Y\_\_N\_\_

One (1) 25' length(s) of 5" Niedner high volume hose shall be supplied with the apparatus. The hose shall have a storz coupling [on one end and a 4.5" NST female long handle swivle.](#)

## ADAPTORS

Y\_\_N\_\_

All NFPA required Adaptors will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_

## SCBA & CYLINDERS (air packs)

Y\_\_N\_\_

All NFPA required SCBA and Cylinders will be supplied and installed by the Customer before the truck is placed into service.

Y\_\_N\_\_