

Interlaken Fire Department

INSTRUCTIONS TO BIDDERS

The purpose of these instructions and specifications are to describe the requirements, construction, and delivery of a Fire Fighting Apparatus as outlined herein for the **Interlaken Fire Department**, here after referred to as the "Purchaser".

Bid envelopes shall be plainly labeled **BID FOR NEW PUMPER TANKER**.

Bids will only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of twenty-five (25) years.

Each bidder shall furnish satisfactory evidence of his ability to construct the apparatus specified, and shall state the location of the factory where the apparatus is to be built. The bidder shall also show that they are in a position to render prompt service and furnish replacement parts for said apparatus.

It is the bidder's responsibility to see that their proposals arrive on time. Late proposals, facsimiles, telegrams, or telephone bids will not be considered.

The purchaser reserves the right to accept or reject any or all bids on such basis as the purchaser deems to be in its best interest. Purchaser further reserves the right to reject any or all bids, including without limitation the rights to reject any or all nonconforming, non-responsive, or conditional Bids. Purchaser also reserves the right to waive all informalities not involving price, time, or any non-compliance with, or changes in, the Specifications not accepted by Purchaser as Exceptions.

All bid prices shall remain effective for 45 calendar days from the bid opening date. Discrepancies between the multiplication of units and unit prices will be resolved in favor of the unit prices; discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum; and discrepancies between words and figures will be resolved in favor of the words.

The apparatus is to be of current year of manufacture and is to be new.

The bid price shall not include any local, state, or federal taxes.

DELIVERY

Each bidder shall clearly state the delivery date of the vehicle in calendar days. This shall be after receipt of the signed contract.

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INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser a complete unit equipped as herein specified, with a view of obtaining the best results and the most acceptable apparatus for the purchaser.

These specifications cover only the general requirements as to the type of construction and test to which the apparatus must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor with full notification to the purchaser.

All equipment and components shall comply with the National Fire Protection Association Pamphlet 1901 (2016 Edition), Standard for Automotive Fire Apparatus, for Pumper Fire Apparatus Equipped with a Fire Pump. In addition, the apparatus shall also comply with all federal, state, ICC, and DOT regulations, standards, and laws relating to commercial vehicles as well as to the fire apparatus.

Loose equipment shall be provided only as stated in the following pages.

LIABILITY

The bidder, if his/her bid is accepted, shall defend any and all suits and assume liability for the use of any patented process, device or article forming a part of the apparatus or any appliance furnished under the contract to the extent allowable under the law.

COMMERCIAL GENERAL LIABILITY INSURANCE

Each bidder shall supply proof of product liability and facility insurance equal to or exceeding \$5,000,000. This shall be provided as part of the proposal.

GENERAL REQUIREMENTS

This specification package, along with any herein listed exceptions, shall be submitted as a part of the bidder's entire bid proposal. Do not detach or omit these sheets.

Proposal specifications must be on the manufacturer's own standard forms. In no case shall a bidder photocopy these specifications as his proposal specifications. **"NO EXCEPTIONS"**

Each bidder is required to provide in his bid to the purchaser a complete and accurate description of his own apparatus in the exact sequence of these specifications.

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INTERPRETATIONS AND ADDENDA: All questions about the meaning or intent the Bid Documents are to be directed to _Jim Borden (or designee) (607)-279-7198. Interpretations or clarifications considered necessary in response to such questions will be issued by Addenda and delivered to all parties having received the Bid Documents. Questions received less than two days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued to modify the Bid Documents as deemed advisable by Purchaser.

EXCEPTIONS, VARIATIONS, OR CLARIFICATIONS

These specifications are based upon performance criteria which have been developed by the purchaser as a result of extensive research and careful analysis of the data. Subsequently, these specifications reflect the only type of fire apparatus that is acceptable at this time. Therefore, major exceptions to the specifications will not be accepted.

All bidders shall place a "Y" for yes or a "N": for no next to each and every paragraph in the column provided on the right-hand edge of the paper, indicating compliance or noncompliance with that paragraph of the specifications.

A number shall be inserted next to the paragraph which relates to an explanation on page(s) entitled "Exceptions" that the bidder shall include with their proposal specifications.

Any exception shall be clearly defined with details as to the proposed alternative, referencing manufacturer and model where appropriate. Descriptive literature shall be provided to help evaluate the exception. A general exception cannot be taken for any paragraph. A full word for word Written Comparison shall be included within the bid for any exception listed. Each exception shall be considered by the degree of impact and total effect on the bid. Proposals taking total exception to the specifications shall not be considered by the purchaser. **"NO EXCEPTIONS"**

The purchaser shall determine which (if any) exceptions are acceptable and this determination shall be final. The Contract, if awarded, will be on the basis of materials and equipment described in the Specifications, and if a substitute or "or-equal" item is proposed and is found acceptable by the Purchaser, the Purchaser may issue an addendum to such effect or simply accept the same. A "qualified bid: will be one where each Exception is found acceptable by Purchaser, and no Exception is found to be a material deviation from the required Specifications.

The purchaser shall assume that failure to cite an exception indicates full compliance with the specifications. Should the equipment not comply with all requirements of this document, the equipment shall be rejected at the final inspection. All equipment shall be inspected for material, workmanship, and compliance with the specifications prior to acceptance. All equipment found to be in noncompliance shall be identified and the

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purchaser reserves the right to accept or reject the specific items. The noncompliant rejected equipment shall be replaced or reworked to meet the requirements of this document at no additional cost to the purchaser.

The bidder shall have thirty (30) days after delivery to fulfill that part(s) of the specifications which does not comply to the original outlined specifications. Bidder shall incur all expenses of pickup and redelivery of the apparatus.

CONSTRUCTION

The materials specified are considered absolute minimum. Exceptions will not be accepted or permitted since all raw materials of the specified type are available to all manufacturers. Since all manufacturers have the ability to shear, break, and weld as these specifications require, all basic design requirements shall be complied with.

The apparatus shall be constructed with due consideration to the nature and distribution of the load to be sustained and to the general character of service to which the apparatus is to be subjected when placed in service. All parts of the apparatus shall be of adequate strength to withstand the general service under full load. The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment, and service.

BID BOND

A bid bond will be submitted with the bidder's proposal. The bond will be for an amount equal to 10% of the proposed bid price. Failure to provide an acceptable, valid bid bond with the proposal will result in the immediate rejection of the bidder's proposal.

DATA REQUIRED OF THE CONTRACTOR - NFPA 4.20

NFPA 4.20.1 Fire Apparatus Documentation

The contractor will supply, at the time of delivery, at least one (1) copy of the following documents:

- (1) The manufacturer's record of apparatus construction details, including the following information:
 - a. Owner's name and address
 - b. Apparatus manufacturer, model and serial number
 - c. Chassis make, model, and serial number
 - d. GAWR of front and rear axles and GVWR
 - e. Front tire size and total rated capacity in pounds

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- f. Rear tire size and total rated capacity in pounds
 - g. Chassis weight distribution in pounds with water and manufacturer-mounted equipment front and rear
 - h. Engine make, model, serial number, rated horsepower, and related speed and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio
 - i. Type of fuel and fuel tank capacity
 - j. Electrical system voltage and alternator output in amps
 - k. Battery make, model, and capacity in cold crank amps (CCA)
 - l. Transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio.
 - m. Ratios of all driving axles.
 - n. Maximum governed road speed
 - o. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
 - p. Pump transmission make, model, serial number, and gear ratio
 - q. Auxiliary pump make, model, rated capacity in gallons per minute, (liters per minute where applicable) and serial number
 - r. Water tank certified capacity in gallons or liters
 - s. Aerial device type, rated vertical height in feet (meters), rated horizontal reach in feet (meters), and rated capacity in pounds (kilograms)
 - t. Paint manufacturer and paint number(s)
 - u. Company name and signature of responsible company representative
 - v. Weight documents from a certified scale showing actual loading on the front axle, rear axles(s), and over all fire apparatus (with the water tank full but without personnel, equipment, and hose)
- (2) If the apparatus is a mobile foam fire apparatus, the certification of foam tank capacity
 - (3) Certification of compliance of the optical warning system
 - (4) Siren manufacturer's certification of the siren
 - (5) Written load analysis and results of the electrical system performance tests
 - (6) Certification of slip resistance of all stepping, standing and walking surfaces
 - (7) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability
 - (8) If the apparatus has a fire pump, and special conditions are specified by the purchaser, the pump manufacturer's certification of suction capacity under the special conditions
 - (9) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications
 - (10) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed

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- (11) If the apparatus has a fire pump, the pump manufacturer's certification of the hydrostatic test
- (12) If the apparatus has a fire pump, the certification of inspection and test for fire pump.
- (13) If the apparatus is equipped with an auxiliary pump, the apparatus manufacturer's certification of the hydrostatic test
- (14) When the apparatus is equipped with a water tank, the certification of water tank capacity
- (15) If the apparatus has an aerial device, the certification of inspection and test for the aerial device
- (16) If the apparatus has an aerial device, all the technical information required for inspection to comply with NFPA 1911
- (17) If the apparatus has a foam proportioning system, the foam proportioning system manufacturer's certification of accuracy and the final installer's certification the foam proportioning system meets this standard
- (18) If the apparatus has a CAFS, the documentation of the manufacturer's pre-delivery tests
- (19) If the apparatus has a line voltage power source, the certification of the test for the power source
- (20) If the apparatus is equipped with an air system, air tank certificates, the SCBA fill station certification, and the results of the testing of the air system installation
- (21) Any other required manufacturer test data or reports

OPERATION AND SERVICE DOCUMENTS - NFPA 4.20.2

NFPA 4.20.2.1 - The contractor shall deliver with the fire apparatus complete operation and service documentation covering the completed apparatus as delivered and accepted.

The documentation shall address at least the inspection, service and operations of the fire apparatus and all major components thereof.

The contractor shall also deliver with the fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:

- (1) Manufacturer's name and address
- (2) Country of manufacture
- (3) Source for service and technical information
- (4) Parts replacement information
- (5) Descriptions, specifications, and ratings of the chassis, pump (if applicable) and the aerial device (if applicable)
- (6) Wiring diagrams for low-voltage and line voltage systems to include the following information:

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- (a) Pictorial representations of circuit logic for all electrical components and wiring
- (b) Circuit identification
- (c) Connector pin identification
- (d) Zone location of electrical components
- (e) Safety interlocks
- (f) Alternator-battery power distribution circuits
- (g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
- (7) Lubrication charts
- (8) Operating instructions for chassis, any major components such as pump or aerial device, and any auxiliary systems
- (9) Precautions related to multiple configurations of aerial devices, if applicable
- (10) Instructions regarding the frequency and procedure for recommended maintenance
- (11) Overall apparatus operating instructions
- (12) Safety considerations
- (13) Limitations of use
- (14) Inspection procedures
- (15) Recommend service procedures
- (16) Troubleshooting guide
- (17) Apparatus body, chassis, and other component manufacturers' warranties
- (18) Special data required by this standard
- (19) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus
- (20) One (1) copy of the latest addition of FAMA's Fire Apparatus Safety Guide

NFPA 4.20.2.4 - The contractor will deliver with the apparatus all manufacturers' operations and service documents supplied with components and equipment that are installed or supplied by the contractor.

HIGHWAY PERFORMANCE NFPA 4.15

NFPA 4.15.1 - The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:

- 1: Accelerating from 0 to 35 mph (55 km/hr.) within 25 seconds on a 0 percent grade;
- 2: Attaining a speed of 50 mph (80 km/hr.) on a 0 percent grade;

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3: Maintaining a speed of at least 20 mph (32 km/hr.) on any grade up to and including 6 percent.

NFPA 4.15.2 - The maximum top speed of fire apparatus with a GVWR over 26,000 lb. (11,800 kg) shall not exceed either 68 mph (109 km/hr.) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

NFPA 4.15.3 - If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gallons, or the GVWR of the vehicle is over 50,000 lb., the maximum top speed of the apparatus shall not exceed either 60 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

NFPA TAG REQUIREMENTS

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

A sign that reads "**OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION**" shall be provided and located in the chassis cab in an area that is visible from each seating position.

An accident prevention sign that states "**OVERALL HEIGHT OF APPARATUS ___ INCHES**"

One "Final Stage Label" shall be attached to the driver's side door jamb. The label shall certify that the complete vehicle conforms to the federal motor vehicle safety standards, which have been previously fully certified by the incomplete vehicle manufacture or by the intermediate vehicle manufacture and have not been affected by the final stage manufacture.

An accident prevention sign that states "**DANGER: DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION - DEATH OR SERIOUS INJURY MAY RESULT**" shall be provided and installed at the rear of the apparatus.

A label stating "**DO NOT WEAR HELMET WHILE SEATED**" shall be visible from each seating location.

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ENGINEERING DRAWINGS

All bidders shall submit blueprints which have been produced on computer-aided-design equipment, **NO EXCEPTION.**

The blueprints submitted shall match exactly to the purchaser's specifications and are on "D" size paper, 24" x 36".

The blueprints are provided as follows:

- Left side
- Right side
- Rear view
- Top view

The final production blueprints shall be provided and approved by the customer prior to any metal being sheared.

The design of the equipment is in accordance with the best engineering practices. The equipment design and accessories installed shall permit accessibility for use, maintenance, and service. All components and assemblies shall be free of hazardous protrusions, sharp edges, cracks or other elements which might cause injury to personnel or damage to equipment.

All oil, hydraulic, and air tubing lines and electrical wiring shall be located in protective positions properly attached to the frame or body structure and shall have protective loom or grommets at each point where they pass through structural members in compliance with NFPA 1901 section 2-7.

Parts and components will be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure. Whenever functional layout of operation components determines that physical or visual interference between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility.

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WARRANTY

Each bidder shall include a copy of their warranty and all warranties that are supplied by the equipment manufacturers of the components used on the apparatus, with the bid proposal. The following minimum warranties shall be provided, **NO EXCEPTION**.

The finest materials and utmost care go into the fabrication of each new apparatus. By using normal care, without abuse, this equipment will give you lasting service.

Each new motorized Fire and Rescue Apparatus is to be free from defects in material and workmanship, under normal use and service, for a period of one year. Our obligation under this warranty is limited to replacing or repairing, as the manufacturer may elect, any part or parts thereof, which, upon examination, would be determined to be defective. Such defective part or parts will be replaced free of charge, and without charge for installation, to the original purchaser.

All warranty work related to the apparatus (not including vehicle chassis) is to be performed at the manufacturer's factory or at an authorized service center.

If warranty service is available at the purchaser's location, a detailed description must be included to explain how any chargers would be applicable for handling such warranties.

This does not obligate the manufacturer to bear the costs of transportation charges and related expenses incurred in the replacement of parts.

BODY WARRANTY

The manufacturer shall warrant the entire stainless-steel body against rust and/or full corrosion perforation and metal fatigue for a period of thirty (30) years from the date of delivery to the original purchaser, provided the apparatus is used in a normal and reasonable manner.

The term "body" shall be inclusive of the following:

- Hose bed side walls
- Compartments and compartment supports
- Compartment doors *except roll-up doors, when specified*
- Complete subframe including pump house framing

WATER TANK WARRANTY

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The contracted tank manufacturer shall warrant that the tank provided shall be of first-class workmanship and that, under normal conditions, shall show no defects due to faulty design, workmanship, or material for the Lifetime of the vehicle to the original owner.

PUMP WARRANTY

The contracted pump manufacturer shall warrant that the pump provided shall be of first-class workmanship and that, under normal conditions, shall show no defects due to faulty design, workmanship, or materials for a period of five (5) years.

PUMP PLUMBING WARRANTY

The galvanized or stainless-steel plumbing components, as specified, and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years or 100,000 miles. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.

12 VOLT ELECTRICAL WARRANTY

The 12-volt electrical system and ancillary components used in the construction of the apparatus shall be warranted for a period of five (5) years. This covers failures caused by defective design or workmanship, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser, for a period of five (5) years from the date of delivery.

Items specifically covered are:

- Electrical harnesses and harness installation
- Switches, circuit breakers, and relays
- LED Lighting: FMVSS required and warning lights
- Electrical connectors and connections, against corrosion or deterioration

Items excluded, as they are covered by specific warranties supplied by the manufacturer of the components:

- Chassis electrical systems and components installed by the chassis manufacturer.
- Batteries, battery chargers, two-way radio equipment, and similar equipment.
- Periodic cleaning and tightening of battery terminal connections.
- Accident, negligence, or unauthorized alteration of original equipment.

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PAINT WARRANTY

The paint on the unit will be provided with a seven (7) year paint finish guarantee which will cover the finish for the following items:

- Peeling or delamination of the top coat and/or other layers of paint.
- Cracking or checking.
- Loss of gloss caused by defective finishes which are covered by this guarantee.

CHASSIS WARRANTY

Chassis shall be warranted by the chassis manufacturer as per the chassis manufacturer's issued warranty.

100% WARRANTY ON ALL OTHER ITEMS FOR ONE YEAR.

THIS WILL NOT APPLY

1. To normal maintenance services or adjustments.
2. To damage caused by negligence of normal maintenance.
3. To any vehicle which shall have been repaired or altered outside our factory in any way, so as, in our judgement, to affect its stability, nor which has been subjected to negligence, or accident, nor to any vehicle made by us which shall have been operated at a speed exceeding the factory-rated speed, or loaded beyond the factory-rated load capacity.

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4. To major components such as purchased chassis and associated equipment furnished with chassis, signaling devices, generators, batteries, or other trade accessories, inasmuch as they are usually warranted separately by their respective manufacturers or to ancillary equipment used in rescue or firefighting.
5. To loss of time or use of vehicle, inconvenience or other incidental expenses.

THIS WARRANTY IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WITH RESPECT TO QUALITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR APPLICATION.

DELIVERY & DEMONSTRATION

Apparatus will be delivered under its own power to insure proper break in of all components while still under warranty.

A qualified delivery engineer representing the manufacturer, will deliver the apparatus and remain with the fire department for one day to demonstrate the apparatus and provide initial instruction to representatives of the fire department regarding the operation, care, and maintenance of the apparatus and equipment supplied.

INSPECTION TRIPS

Inspection trips are crucial and must be detailed by each bidder. An optional cost must be included for at least the 2 following trips:

The trips will take place at the following time periods:

- Pre-paint Inspection at the bidder's factory.
- Final inspection upon completion of apparatus at the bidder's factory.

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OVERALL APPARATUS DIMENSIONS AND REQUIREMENTS

Maximum overall length must be 27 feet.

TRANSMISSION SHIFT LOCK - ALLISON-3000 EVS

The transmission shall have a shift lock-up to keep the automatic transmission in direct gear during pumping operations. The transmission shift lock-up shall be automatically activated when the pump is placed in gear and deactivated when the pump is taken out of gear.

FUEL TANK ENCLOSURE

The fuel tank and entrance steps will be clad with polished aluminum diamond plate. This will be done in a manner which is both safe and practical, and shall add to the appearance of the apparatus. All steps shall have a positive, skid-resistant surface.

PASSENGERS TRIM

The passengers side entrance steps and engine after treatment components will be clad with polished aluminum diamond plate. This will be done in a manner which is both safe and practical, and shall add to the appearance of the apparatus. All steps shall have a positive, skid-resistant surface.

CONSOLE BETWEEN THE DRIVER AND OFFICER SEAT

An aluminum console shall be specially designed to fit between the driver and the officer seats, to house all electrical lighting switches.

The console shall also be designed to hold the customer's specified communication equipment.

Exact layout shall be approved by the customer, prior to construction.

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EXHAUST HEAT SHIELD

The chassis horizontal exhaust pipe shall be equipped with a stainless-steel heat shield to protect the body compartments.

The exhaust pipe shall discharge engine exhaust to the right side of the apparatus.

MUDFLAPS

Heavy-duty black rubber mudflaps shall be provided behind the front tires.

Black, anti-sail mudflaps shall be installed behind the rear wheels.

CHASSIS MODIFICATIONS - REAR STAINLESS STEEL TOW EYES

Two (2) stainless steel tow eyes shall be attached directly to the chassis frame rails at the rear.

HELMET STORAGE

Two (2) Ziamatic model UHH-1 helmet holders shall be provided and mounted in the cab. Mounting location to be approved by the customer at pre-paint inspection.

VEHICLE DATA RECORDER AND SEAT BELT WARNING SYSTEM

The vehicle data recorder and seat belt warning system will be supplied with the chassis.

TIRE PRESSURE INDICATOR – NFPA 4.13.4

Reel Wheels *Tire Watch* stainless steel electronic LED valve caps that shall be installed on all wheels. Caps shall illuminate with a red LED when tire pressure drops 8 psi. The valve caps are self-calibrating, and are set to the pressure of the tire upon installation.

IGNITION ON LIGHT

A green "MASTER DISCONNECT ON" indicator light, visible from the driver's position, shall be provided.

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IGNITION - KEY CHAIN

The key to the chassis ignition shall be permanently chained to the dash to prevent accidental removal of the key from the cab.

MASTER LOAD DISCONNECT SWITCH

The chassis battery system shall be equipped with a Cole-Hersee model 2484-09 master load disconnect switch, installed in the cab and accessible to the driver.

BATTERY CHARGER, BUILT-IN BATTERY SAVER, BAR GRAPH DISPLAY, AND AUTO PUMP

A Kussmaul Auto Charge #1000 Series Model #091-215-12, 15-amp battery charger and 3-amp Battery Saver shall be provided and installed. The charger shall include a Model #091-199-001 remote digital display.

The Auto Charge 1000 with Parasitic Load Compensation (PLC) is a compact, microprocessor controlled, completely automatic, single channel battery charger designed for vehicles with a single battery system. The PLC charger is designed to withstand the shock and vibration encountered by vehicle mounted equipment.

The Battery Saver component shall eliminate drain on vehicle's battery system when vehicle is not in use. The system shall automatically disconnect auxiliary vehicle loads from battery when the charger is energized.

Parasitic Load Compensation feature is designed specially to meet the heavy-duty requirements of emergency vehicles. Parasitic load compensation allows the operator to input the total number of parasitic load amps on the vehicle. The charger will then shift the absorption stage set point so the battery voltage will drop to the float voltage when the desired current is reached. This will lead to a longer battery life and prevent overcharging or overheating.

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AUTO PUMP

A Kussmaul 091-9B-1 Auto Pump shall be provided and plumbed to the chassis air brake system to maintain air pressure. System shall be 120-volt 60 Hz shaded pole A. C. motor operating a single cylinder air compressor designed specifically for installation on vehicles with air brakes. During long idle periods of the vehicle, when even the slightest seepage can cause an air brake system pressure to drop below the brake lockup pressure, the Auto Pump AC automatically starts to maintain the pressure.

It is to be powered by a 20-amp 120V inlet receptacle, with weather proof cover and box, located on the left-hand pump panel.

CHASSIS MODIFICATION - EXTERNAL JUMPER POSTS

One (1) set of external jumper posts shall be supplied on the unit, located near the batteries, and directly connected to the batteries.

The posts will be clearly color-identified, so there will be no confusion when connecting jumper cables or a battery charger to the posts.

CHASSIS MODIFICATIONS-110 VOLT SHORELINES

Two (2) 110-volt shorelines shall installed.

1. To be run to the interior of the cab for accessory electrical equipment.
1. to be installed in compartment R1

Each line shall be wired to a duplex outlet, located in the center of the cab, where specified by the customer.

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RADIO ANTENNA MOUNTS

Two (2) antenna mounting bases, Model MATM, with 17 feet of coax cable and weatherproof cap shall be provided for two-way radios.

The mounts shall be located on the cab roof.

The cables shall be routed to the right-side interior for customer to route to the instrument panel if needed.

PUMP - HALE DSD

1500 GPM MIDSHIP PUMP

The pump must deliver the percentage of rated capacity at the pressure listed 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

PUMP ASSEMBLY

6. The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1901 rated performance.
7. The entire pump shall be assembled and tested at the pump manufacturer's factory.
8. The pump shall be driven by a driveline from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.
9. The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance specs, as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.
10. The pump body and related parts shall be of fine-grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in

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contact with water shall be of high-quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable.

11. Pump body shall be vertically split, on a single plane for easy removal of entire impeller assembly including clearance rings.
12. Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep-groove ball bearings in the gearbox and they shall be splash lubricated.
13. The pump impeller shall be hard, fine-grain bronze of the mixed-flow design; accurately machined, hand-ground and individually balanced. The vanes of the impeller intake eye shall be hand-ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity, utilizing minimum horsepower.
14. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.
15. The pump shaft shall be heat-treated, electric furnace, corrosion-resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

GEARBOX

1. Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve, and to maintain the proper operating temperature.
2. The gearbox driveshafts shall be of heat-treated chrome-nickel steel and at least 2-3/4 inches in diameter, on both the input and output driveshafts. They shall withstand the full torque of the engine.
3. All gears, both drive and pump, shall be of highest quality electric furnace chrome-nickel steel. Bores shall be ground to size, and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth and quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.)
4. The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

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5. If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat-treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump.
6. 6. For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the driver compartment and one green light on pump operators panel, adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driver compartment. All lights to have appropriate identification/instruction plates.

PUMP CONTROL

Provisions shall be made for placing the pump drive system in operation, using controls and switches that are identified, and within convenient reach of the operator.

A "PUMP ENGAGED" indicator shall be provided in the driving compartment and on the operator's panel to indicate that the pump shift process has been successfully completed. An "OK TO PUMP" indicator shall be provided in the driving compartment to indicate that the pump is engaged, the chassis transmission is in pump gear, and the parking brake is engaged.

The fire pump-shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position. The system shall include a nameplate, indicating the chassis transmission shift selector position to be used for pumping, and located so that it can be easily read from the driver's position.

The system shall include the applicable NFPA standard interlocks, pump shift, and "OK TO PUMP" indicator lights in the cab and at the pump panel. The fire pump system shall be equipped with an interlock system to ensure that the pump drive system components are properly engaged in the pumping mode of operation, so that the pumping system can be safely operated from the pump operator's position.

If applicable, the secondary braking device shall be automatically disengaged for pumping operations.

ANODE SYSTEM

Two (2) anodes shall be installed in the pump to prevent damage caused by galvanic corrosion within the pump.

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One (1) installed in the suction side of the pump and one (1) installed in the discharge side of the pump.

The anodes should be inspected every 12 months and replaced when over 75% of the zinc has been consumed. Performance of the anode life will vary with water quality and PH.

PRESSURE GOVERNOR, MONITORING, AND MASTER PRESSURE DISPLAY

Fire Research *InControl* series TGA401-D00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof, and have dimensions not to exceed 5-1/2" high by 10-1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red *Idle* push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- *Pump Discharge*; shown with four (4) daylight bright LED digits, more than 1/2" high
- *Pump Intake*; shown with four (4) daylight bright LED digits, more than 1/2" high
- *Pressure / RPM* setting; shown on a dot-matrix message display
- *Pressure* and *RPM* operating mode LEDs
- *Throttle Ready* LED
- *Engine RPM*; shown with four (4) daylight bright LED digits more than 1/2" high
- *Check Engine* and *Stop Engine* warning LEDs
- *Oil Pressure*; shown on a dual-color (green/red) LED bar graph display
- *Engine Coolant Temperature*; shown on a dual-color (green/red) LED bar graph display
- *Transmission Temperature*; shown on a dual-color (green/red) LED bar graph display
- *Battery Voltage*; shown on a dual-color (green/red) LED bar graph display.

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

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

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

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

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

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

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

AUTOMATIC FIRE PUMP PRIMING SYSTEM – MULTI-LOCATION

A Trident Model #31.011.22 automatic multi-location air-operated priming system shall be installed. The unit shall be of all brass and stainless-steel construction, and designed for fire pumps of 1,250 GPM (4,690 LPM) or more. Due to corrosion exposure, no aluminum or vanes shall be used in the primer design. The primer shall be a three-barrel design with 3/4" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass 'wye' type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

AUTOMATIC PRIMER CONTROL WITH VACUUM GAUGE PANEL

The 12-volt primer control shall be an automatic-type, with a pump panel three-way switch to operate an air solenoid valve. The panel switch shall operate a 12-volt solenoid to direct air pressure from the air brake system to prime the pump. To prevent freezing, no water shall enter the primer valve control.

A vacuum gauge, 2" in diameter, with graduations from zero to 30 feet, shall be installed in the primer control panel. The gauge shall be physically connected to the vacuum side of the primer and read only when the primer is running, so it will never see or be subject to damage from high pump intake pressures.

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The automatic priming switch shall have three positions as follows:

- **Prime** - the lower position shall be a momentary “push-to-prime”. The “Prime” position also allows the operator to “ramp” test the primer without the fire pump being engaged.
- **Off** - center position
- *Auto-Prime* - in the upper position, a green LED pilot light shall be illuminated when the switch is the "Auto-Prime" position. The *Auto-Prime* operates automatically when the pump pressure drops below 20 PSIG. The primer shuts off automatically when the pump pressure is re-established and exceeds 20 PSIG. The *auto* mode only operates when the fire pump is engaged.

Two (2) additional push-to-prime remote primer controls shall be installed on the panel for the specified intakes. The additional controls shall operate the air primer to pre-prime and may be used to remove air from the auxiliary intake piping and hose, while the fire pump is operating. To prevent freezing, no water shall enter the primer valve control.

Warranty - The primer shall be covered by a five (5) year parts warranty.

PIPING

All piping shall be heavy-duty, 304 grade, schedule 10 stainless steel or Class 1 high-pressure flexible hose. All stainless-steel fittings shall be threaded or welded.

Class 1 flexible hose shall be Black SBR synthetic rubber hose with 300# working and 1200# burst pressure, with stainless steel fittings.

Whenever possible, sweep-type elbows shall be utilized, in order to reduce friction loss. Thread-in 45's and 90's will be used elsewhere.

Victaulic or rubber couplings shall be used, where necessary, to allow flexing of plumbing, which will prevent damage or loosening of the piping, which can occur with rigid plumbing.

All threaded joints shall have non-hardening type sealant for easy removal for repairs.

All piping, including intake and discharge lines, shall be hydrostatically tested. A vacuum test shall be applied to the pump, plumbing, and valves, to test for leaks. The system shall

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be tested, and shall show minimum loss of no more than 10 inches of vacuum over a 5-minute period, as required by NFPA section 16.13.6.4.

SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES

Small lines within the pump enclosure shall be constructed from Synflex hose. Uses include, but are not limited to, such lines as priming control, gauge lines, drain lines, air control valves, pump shift, supplemental cooling, foam flush, and air bleeder valves.

FIRE PUMP & PLUMBING SYSTEM PAINTING

The fire pump and plumbing system shall be painted job color, or the lower color when a two-paint scheme is specified. No exceptions.

AKRON VALVES

All pump intake and discharge valves shall be *AKRON 8000* heavy-duty swing-out series. The valves shall have an all-brass body with flow-optimizing stainless-steel ball, and dual-polymer seats. The valves shall be capable of dual-directional flow, while incorporating a self-locking ball feature, using an automatic friction lock design, and specially designed flow-optimizing stainless-steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valves shall carry a ten (10) year manufacturer's warranty. The valve shall be manufactured and assembled in the United States.

INTAKE RELIEF VALVE

An Elkhart Brass intake relief valve shall be installed on the suction side of the pump. The valve shall be the preset type at 125 PSI and is adjustable from 75 to 250 PSI, and shall be designed to prevent vibration from altering the setting. The relief outlet shall be directed below the pump with the discharge terminating in a 2-1/2" male NST connection. The discharge shall be away from the pump operator and labeled "Do Not Cap".

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U.L. PUMP & VOLTAGE CERTIFICATION TEST

One (1) certification test shall be performed at the manufacturers on-site testing facility, by Underwriters Laboratories.

The certification shall include at minimum:

- Pumping test - NFPA 16.13.2
- Pumping engine overload test – NFPA 16.13.3
- Pressure control system test - NFPA 16.13.4
- Priming system tests - NFPA 16.13.5
- Vacuum test - NFPA 16.13.6
- Water tank-to-pump flow test - NFPA 16.13.7
- If tire pump is driven by the chassis engine: engine speed advancement interlock test – NFPA 16.13.8
- Gauge and flowmeter test – NFPA 16.13.9
- Low voltage
- Line voltage

A test plate shall be provided at the pump operator's position that gives the rated discharges and pressures, together with the speed of the engine, as determined by the certification test. The plate shall be completely engraved with all information at the factory, and attached to the vehicle prior to delivery. The original U.L. certificate shall be provided upon acceptance and payment of the apparatus in full.

VENTED LUG CAPS AND PLUGS

All intake and discharge plugs and caps shall be vented-lug type, designed to relieve trapped pressure and help reduce possible operator injuries.

STEAMER INLETS

Two (2) 6" steamer inlets shall be provided on the pump panels, one (1) on the left side and one (1) on the right side.

Both inlets shall have screens and chrome caps with long handles.

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HALE (MIV-E) ELECTRIC MASTER INTAKE VALVE

The right-side inlet valve shall be a full-flow butterfly-type valve designed to mount on the fire pump, between the suction tube extension and suction tube, behind the pump compartment panel. The entire valve shall be cast, manufactured, and tested at the pump manufacturer's factory.

When the valve is installed in the fire pump suction, the fire pump shall be capable of achieving an NFPA / UL test rating of 1500 GPM (5678 LPM) through a single 6-inch NST suction hose.

A pressure relief valve shall be provided, that is factory pre-set to 125 PSI (9 BAR) and field adjustable from 75 to 250 PSI (5 to 17 BAR). The pressure relief valve shall provide over- pressure protection for the suction hose even when the intake valve is closed.

An integral relief valve mounting pad shall be provided on the valve body. This mounting pad shall provide a Hale *Type 115* 4-3/8-inch bolt circle flange for normal installation. The mounting pad shall have 2-1/2-inch female NPT threads to permit remote mounting of the relief valve, without special adapters.

The outlet of the pressure relief valve shall have 2-1/2-inch NPT threads to allow directing the discharge flow away from the pump operator position.

The inlet valve shall be operated by a 12 VDC electric motor, with remote override handwheel, located next to the suction tube.

Each valve shall be provided with panel placards, indicating control operation. The placards shall have status lights to indicate whether the valve is open, closed, or traversing from one position to another. Each valve shall be provided with a gear actuator that will cycle the valve from OPEN to CLOSED position in no less than 3 seconds.

The gear actuators shall be sealed units, designed to provide reliable service in the harsh pump compartment environment.

The ratio of the gear actuator shall be such that the handwheel will close the valve in no more than 10 complete turns.

The 12 VDC motor on the electric-operated valve shall be provided with an automatic-resetting, thermally-compensated, over-current protection circuit breaker to protect the 12 VDC motor and apparatus electrical system.

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The valve body shall have a 3/4-inch female NPT threaded port on the top to allow installation of an NFPA compliant large diameter hose air bleeder valve.

The air bleeder valve shall be mounted on the operator's panel, and be controllable by the pump operator.

The valve body shall have a 1/4-inch female NPT threaded port on the bottom to permit connection of an individual water drain valve.

A suction tube extension, 7-1/4 inches wide, shall be used to allow for the additional length of the inlet valve.

The shorter suction tube extension, along with a 4-, 6-, or 9-inch suction tube, will keep the suction tube threads within the apparatus running boards, while maintaining clearance for adapters.

A panel-mounted manual override shall be provided to permit operation of the electric remote-control valve, in the event of abnormal operating conditions.

The manual override shall be designed to permit operation of the valve without the use of special tools or disassembly of the pump compartment panel or valve.

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HALE (MIV-E) ELECTRIC MASTER INTAKE VALVE

The left side inlet valve shall be a full-flow butterfly-type valve, designed to mount on the fire pump, between the suction tube extension and suction tube, behind the pump compartment panel. The entire valve shall be cast, manufactured, and tested at the pump manufacturer's factory.

When the valve is installed in the fire pump suction, the fire pump shall be capable of achieving an NFPA / UL test rating of 1500 GPM (5678 LPM) through a single 6-inch NST suction hose.

A pressure relief valve shall be provided that is factory pre-set to 125 PSI (9 BAR) and field adjustable from 75 to 250 PSI (5 to 17 BAR). The pressure relief valve shall provide over- pressure protection for the suction hose, even when the intake valve is closed.

An integral relief valve mounting pad shall be provided on the valve body. This mounting pad shall provide a Hale *Type 115* 4-3/8-inch bolt circle flange for normal installation. The mounting pad shall have 2-1/2-inch female NPT threads to permit remote mounting of the relief valve, without special adapters.

The outlet of the pressure relief valve shall have 2-1/2-inch NPT threads to allow directing the discharge flow away from the pump operator position.

The inlet valve shall be operated by a 12 VDC electric motor with remote override handwheel, located next to the suction tube.

Each valve shall be provided with panel placards indicating control operation. The placards shall have status lights to indicate whether the valve is open, closed, or traversing from one position to another. Each valve shall be provided with a gear actuator that will cycle the valve from OPEN to CLOSED position in no less than 3 seconds.

The gear actuators shall be sealed units, designed to provide reliable service in the harsh pump compartment environment. The ratio of the gear actuator shall be such that the handwheel will close the valve in no more than 10 complete turns.

The 12 VDC motor on the electric-operated valve shall be provided with an automatic-resetting, thermally-compensated, over-current protection circuit breaker, to protect the 12 VDC motor and apparatus electrical system.

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The air bleeder valve shall be mounted on the operator's panel, and be controllable by the pump operator.

The valve body shall have a 1/4-inch female NPT threaded port on the bottom, to permit connection of an individual water drain valve.

A suction tube extension, 7-1/4 inches wide, shall be used to allow for the additional length of the inlet valve.

The shorter suction tube extension, along with a 4-, 6-, or 9-inch suction tube, will keep the suction tube threads within the apparatus running boards, while maintaining clearance for adapters.

A panel-mounted manual override shall be provided, to permit operation of the electric remote-control valve, in the event of abnormal operating conditions.

The manual override shall be designed to permit operation of the valve without the use of special tools or disassembly of the pump compartment panel or valve.

SUCTION - LEFT SIDE

One (1) 2-1/2" suction valve shall be installed on the left side of the unit. The valve body shall be mounted behind the pump panel, with a 2-1/2" NST chrome inlet swivel, chrome plug and chain, and removable inlet strainer.

TANK TO PUMP

There shall be one (1) 3" gated tank to pump line, piped to the tank sump.

Piping from the sump to the valve shall be 4" diameter.

The line shall be plumbed directly into the back of the pump for maximum efficiency.

A full-flow, inline ball valve, with check valve, shall be provided to prevent accidental pressurization of the water tank through the pump connection.

A control with a function plate will be located on the operator's panel.

TANK FILL - 2-1/2"

There shall be a 2-1/2" tank refill line installed, with a 2-1/2" inline valve.

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Valve shall be controlled at the pump operator's panel, and will be clearly marked "TANK REFILL/PUMP COOLER".

CROSSLAY HOSEBEDS W/ 2" PLUMBING

Two (2) crosslays shall be installed over the pump compartment.

Each section of the crosslay shall be capable of holding 200' of 1.75" double-jacketed hose, in a double-stack load.

A 2" mechanical swivel with 1.5" NST hose connector shall be used in each crosslay, to allow deployment of hose in either direction.

Stainless steel rollers with nylon guides shall be mounted on both ends, and below the crosslays.

A 1/4" aluminum divider shall separate the crosslays, and poly-plas matting shall be used on the stainless steel crosslay floor.

Each crosslay shall be plumbed with 2" piping and a 2" valve, and shall be controlled at the operator's panel.

CROSSLAY HOSEBED W/ 2-1/2" PLUMBING

One (1) crosslay shall be installed over the pump.

The crosslay shall be capable of holding 200' of 2.5" double-jacketed fire hose, in a double-stack load.

A 2.5" mechanical swivel hose connector shall be used in the crosslay, to allow deployment of hose in either direction.

Poly-plas matting shall be provided on the stainless steel crosslay floor.

Stainless steel rollers with nylon guides shall be mounted on both ends, and below the crosslay.

The crosslay shall be plumbed with 2.5" piping and a 2.5" valve, and shall be controlled at the operator's panel.

CROSSLAY LID

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A polished aluminum diamond plate lid shall be provided over the crosslay(s).

The lid shall have full-length stainless-steel hinge with Velcro straps to hold lid firmly in place.

CROSSLAY VINYL FLAPS

Black vinyl flaps shall be installed on each end of the crosslay to retain the hose load. The flaps shall be secured with 2" wide straps with Velcro fasteners.

Meets NFPA 15.10.5 - Any hose storage area shall be equipped with a positive means to prevent unintentional deployment of the hose from the top, side, front, and rear of the hose storage area while the apparatus is underway in normal operations.

DUNNAGE COMPARTMENT

The remaining area behind the crosslay(s) shall be used for additional storage space.

DUNNAGE COMPARTMENT

Each side of the dunnage compartment shall be enclosed with 12-gauge satin-finish stainless steel.

DISCHARGE - 2.5" LEFT SIDE

One (1) 2.5" discharge shall be located on the left side pump panel, and shall be controlled from the operator's panel.

The discharge shall terminate with a 2.5" NST 30-degree turn-down with chrome cap and retainer chain.

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DISCHARGE - 2.5" RIGHT SIDE

One (1) 2.5" discharge shall be located on the right-side pump panel, and shall be controlled from the operator's panel.

The discharge shall terminate with a 2.5" NST 30-degree turn-down with chrome cap and retainer chain.

DISCHARGE - 4" RIGHT ELECTRIC - 5" STORZ

One (1) 4" Akron full-flow, electric-activated discharge shall be located on the right-side pump panel, with control switches located on the operator's panel.

Discharge shall terminate with a 4" NST x 5" 30-degree Storz adapter, with blind cap and retainer chain.

DISCHARGE - 2.5" RIGHT REAR HOSEBED

One (1) 2.5" discharge shall be piped to the right rear of the hose bed, and shall be controlled from the operator's panel.

The discharge shall terminate with a 2.5" NST 30-degree turn-down, with chrome cap and retainer chain.

DISCHARGE - 3" DECK GUN

One (1) 3" deck gun discharge shall be plumbed to center of the dunnage area over the pump.

Piping will be firmly supported and braced.

The discharge shall be controlled at the operator's panel.

Discharge shall terminate with 4-bolt flange.

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ELKHART COBRA EXM REMOTE CONTROL MONITOR-PN# 00007204

An ELKHART *COBRA EXM* monitor shall be constructed from durable, hard anodized, lightweight Elk-O-Lite® material with a variable cross-sectional and vaned waterway for flows up to 1250 GPM. It shall be constructed with thrust rods and thrust bearings on both horizontal and vertical rotational joints, for improved product longevity. It shall be configured with 3" or 4" 150# flange, 3" female NPT, 3" female BSPT, or DN80 flange-style inlet connection. It shall be configured with male 2.5" NST or 2.5" BSPP-style outlet connection; shall have two (2) gear motors that allow for simultaneous vertical and horizontal adjustment, one motor shall control up to 350-degree horizontal rotation while the other motor shall control up to 135 degrees vertical travel (-45 degree to +120-degree vertical rotation from horizontal.) It shall provide an input for a sensor/switch to enable/disable the +90 degree to +120-degree vertical travel. Horizontal and vertical motors shall have a manual override device for use in the event of power failure. Electric controls shall be NEMA 4 rated, and shall allow for programmable horizontal center position, vertical and horizontal stops, stow position, keep-out zones, and motor speeds, fast or slow. The electric control shall allow for horizontal and vertical oscillation, electric control shall be CAN and/or hard-wired.

Package will include

- SM-1250 E-Master Stream Nozzle
- ST194 stack tips-2"-1.75"-1.5-1.3/8"
- 282 A stream shaper

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MONITOR EXTENDER (8598)

Extender is designed to provide better clearance for the monitor, to allow for a wider coverage range, and address firefighter safety concerns. An 18" *Extender* shall be compatible with the a range of compact monitors. It shall be designed for use with monitor and nozzle flow ratings of 1250 gpm maximum, with 100 psi nozzle pressure, with a maximum inlet pressure rating of 200 psi. It shall be electrically-actuated through a pump panel push-button control pad, and designed for a static load of up to 2500 pounds in any position. It shall allow deployment of the monitor in 10 seconds. The installation kit shall have an in-cab warning light that shall alert the driver when the unit is not retracted. A pressure switch shall be provided to limit movement when internal pressure exceeds 10 psi, to avoid injury to personnel and damage to equipment. An automatic drain system shall be provided on the vertical piping, to drain all water from the monitor and piping, upon closing of the water valve. It shall have a 3" Victaulic base by a 3" flange outlet, for attachment to apparatus piping. The *Extender* package shall include all items required for installation. Wiring harnesses shall be available in lengths from 5 to 40 feet. The system shall be powered from the chassis electrical system, and shall be in compliance with applicable 2016 NFPA #1901 standards.

AKRON SLO-CLOZ

An Akron Slo-Cloz device shall be provided on each 3" discharge valve, to limit the opening of the valve to no faster than 3 seconds, per N.F.P.A. specifications.

The hydraulic device shall be operable from -40 deg. F to 140 deg. F.

The device shall be made of corrosion-resistant materials, and shall not add more than 1-1/2" to the valve height.

PUMP MASTER DRAIN

The pump shall be equipped with a Trident master drain that will have the capacity to drain all lines and main pump at the same time. The master drain will be mounted on the left side panel, and will be readily accessible.

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DRAIN VALVES

All side discharges and auxiliary suction drain valves shall be *Innovative Controls* 3/4" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag, also supplied by *Innovative Controls*, identifying each valve. The colors labels shall also include valve open and close verbiage. The drain valves shall be located in the lower portion of the pump panels. All other discharges shall have *Class 1* brand 3/4" automatic bleeder drains.

INDEPENDENT PUMP MODULE

The pump module shall be a self-supported structure, mounted independently from the body and chassis cab. The pump module shall be fabricated and constructed from the same material as the body. The design shall allow for normal frame deflection, without imposing stress on the pump module structure. The pump module shall consist of a welded, tubular, stainless steel framework, properly braced, to withstand chassis frame flexing. The pump module shall be bolted to the chassis frame rails.

SIDE MOUNTED OPERATOR'S PANEL

CONSTRUCTION

The pump house shall be a properly-supported structure, mounted between the body and chassis cab, and shall be bolted to the chassis frame rails. The panel shall be supported by 1-1/2" stainless steel tubing.

The pump, and all of the pump-mounted valves, shall be completely enclosed by the pump house design.

Stainless panels shall be brushed, satin-finish, 12-gauge, 304 materials, to ensure longevity.

The left side of the pump house shall consist of an upper, hinged panel containing all required gauges.

The lower panel shall contain left side specified discharges, inlets, drains, and pump controls.

The upper right side of the pump house shall consist of double, vertically-hinged access doors. The doors will be swing-open-style with quick-opening latches.

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A separate, lower panel shall contain the specified right side-mounted discharges and inlets, and their respective drains.

The bottom panel shall be fastened to the pump house with stainless steel bolts, and shall be completely removable.

INNOVATIVE CONTROLS PUSH/PULL VALVE CONTROL HANDLES

For valve actuation, the apparatus pump panel shall be equipped with *Innovative Controls* side-mount valve controls.

The ergonomically-designed, push-pull T-handle shall be chrome-plated zinc with recessed labels for color coding and verbiage. The control rod, double laminated locking clips, and rod housing shall be stainless steel, and shall provide a true, positive lock that will eliminate valve drift. Bronze and Teflon-impregnated stainless-steel bushings, in both ends of rod housing, shall minimize rod deflection, never need lubrication, and ensure consistent, long-term operation. Where required, locking, quarter-turn, push-pull, T-handle controls will be provided.

The control assembly shall include a decorative, chrome-plated, zinc, panel-mounting bezel and four (4) mounting bolts.

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment.

The verbiage label bezel assemblies shall include a chrome-plated, panel-mount bezel with durable, easy-to-read, UV-resistant, polycarbonate inserts, featuring the specified verbiage and color coding. The UV-resistant, polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

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SIDE MOUNTED OPERATOR'S PANEL

The following items shall be located on the left side pump panel:

- Individual 0-400# compound discharge gauges shall be provided for each 1.5" or larger discharge
- One (1) -30 to 400 psi master pressure gauge
- One (1) -30 to 400 psi master vacuum gauge
- One (1) engine oil pressure gauge with audible & visual alarm
- One (1) engine water temperature gauge with audible & visual alarm
- One (1) engine voltmeter
- One (1) waterproof engine tachometer
- Two (2) UL test connections
- One (1) master pump house lighting switch
- One (1) engine throttle control
- One (1) relief valve control and open indicator light
- One (1) primer control
- All discharge controls
- One (1) tank fill/pump bypass control
- One (1) tank to pump valve control
- One (1) pump ENGAGED indicator light
- One pump certification plate
- One liquid level meter with sensor in the water tank

RUNNING BOARDS

Running boards shall be provided on each side of the pump module, which shall extend from the front of the side compartments, forward to the back of the cab. Running boards shall be covered with 1/8" aluminum diamond plate. The inboard edge shall be formed upward 1-1/2", to provide a kick strip along the bottom of the pump panel. The outer edge shall be bent downward to provide a safety rail.

Running boards are supported by 1.50" structural stainless-steel tubing, welded to the pump house framing, and shall be able to support a minimum of 500 pounds. The running board stepping surface will comply with the latest version of NFPA 1901.

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PANEL LIGHTING

The side-mount pump panel shall be illuminated by four (4) TecNiq (model E10-W000-1) 6.00" LED lights with clear lens.

Lights shall be mounted across the top of the gauge panel, and shall be protected by a full-width, polished stainless-steel shield.

Lights are controlled by a panel-mounted master light switch.

One (1) side pump panel light shall illuminate when the pump is shifted into gear from inside the cab, affording the operator illumination when first approaching the control panel.

4.0" INNOVATIVE CONTROLS MASTER GAUGES

The master intake and master discharge gauges shall be 4" diameter Innovative Controls pressure gauges. Each gauge shall have a one-piece nylon case that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates distortion and leakage. Clear, scratch-resistant, molded crystals with captive O-ring seals shall be used to ensure distortion-free viewing, and to seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from -40°F to +160°F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1%, full scale, and include a size-appropriate, phosphorous-bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished stainless-steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative, chrome-plated mounting bezels that incorporate valve-identifying verbiage.

The master gauges shall be installed on the pump panel, no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge, and shall display a range from -30 to 400 psi, with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge, and shall display a range from -30 to 400 psi, with black graphics on a white background.

2-1/2" INNOVATIVE CONTROLS GAUGES

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The valve discharge gauges shall be 2 ½” diameter Innovative Controls pressure gauges. Each gauge shall have a one-piece nylon case that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates distortion and leakage. Clear, scratch-resistant, molded crystals with captive O-ring seals shall be used to ensure distortion free viewing and to seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40°F to +160°F.

Each gauge shall exceed ANSI B40.1 Grade B requirements, with an accuracy of +/- 1.5%, full scale, and shall include a size-appropriate, phosphorous-bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. A polished stainless-steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative, chrome-plated, mounting bezels that incorporate valve-identifying verbiage and color labels. The gauges shall display a range from 0 to 400 psi, with black graphics on a white background.

ICI WATER LEVEL MONITOR

An Innovative Controls SL-10 Series tank level monitor system shall be installed. The system shall include an electronic display module, a pressure transducer-based sender unit, and a 10' connection cable. The display module shall show the volume of water in the tank using 10 superbright, easy-to-see LEDs. Tank level indication is enhanced by the use of green LEDs at the full and near-full levels, amber LEDs between ¾ and ¼ tank levels, and red LEDs at the near-empty and empty levels. A wide-angle diffusion lens in front of the LEDs creates a 180° viewing angle. The electronic display module shall be waterproof and shock resistant, being encapsulated in a urethane-based potting compound. The potted display module shall be mounted to a chrome-plated, panel-mount bezel with a durable easy-to-read polycarbonate insert, featuring blue graphics and a water icon.

All programming functions shall be accessed and performed from the front of the display module. The programming includes self-diagnostics, manual or self-calibration, and networking capabilities to connect remote slave displays. Low tank level warnings shall include flashing red LEDs, starting below the ¼ level, down-chasing LEDs when the tank is almost empty, and an output for an audible alarm.

The display module shall receive an input signal from a pressure transducer. This stainless-steel sender unit shall be installed on the outside of the water tank near the

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bottom. All wiring, cables and connectors shall be waterproof without the need for sealing grease.

Location of water tank level monitor shall be on the pump operator's panel.

WHELEN TANK LEVEL LIGHT

There shall be one (1) Whelen Strip-Light Plus XL tank light, surface-mounted within a chrome bezel. The light will be mounted vertically on the rear of the body.

The light strip shall feature four (4) colors of LED lights, to indicate the fluid level of a tank. The lights shall change in color to indicate the water level of the tank, in ¼ tank increments. The colors shall change from green, indicating a full tank, to blue, amber, and red as the tank level drops.

3.00" REAR DIRECT TANK FILL

One (1) 3.0" Akron Brass style 8830 valve shall be provided. The fill shall terminate with a 2.50" 30-degree chrome elbow, with chrome plug with retainer chain. A 3/4" bleeder will be installed.

The valve will be installed on the rear of the tank, to the left of the rear dump valve.

DUMP VALVE-10" NEWTON ELECTRIC ACTIVATED

One (1) Newton model 1080-34C 10" square stainless steel dump valve shall be provided and installed, centered on the rear of the unit, in the lowest portion of the tank. The valve will be electric-activated, with a control switch located in the cab, within easy reach of the driver.

SWIVEL ADAPTER

A Newton model 6012SW-34 Stainless steel swivel chute will be provided and attached to the rear dump valve. The adapter will swivel 180 degrees. A model 4036 stainless steel slide extension will be attached to the swivel.

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WATER TANK

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

The tank capacity shall be 1250 gallons, and will be equipped with a 6" vent/overflow.

TANK CONSTRUCTION

The poly water tank shall be of a specific configuration, and is designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas, as required and tested, for maximum strength and integrity. The tank construction shall include PolyProSeal™ technology, wherein a sealant shall be installed between the plastic components prior to being fusion-welded. This sealing method will provide a liquid barrier, offering leak protection in the event of a weld compromise. The top of the booster tank is fitted with a removable lifting assembly, designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" PT3™ polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another, and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank, providing maximum strength as part of the tank's unique Full Floor Design™. Tolerances in design allow for a maximum variation of 1/8" on all dimensions.

CAPACITY CERTIFICATION

All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank shall be weighed empty and full to provide precise fluid capacity. Each Poly-Tank® III is delivered with a Certificate of Capacity, delineating the weight empty and full, and the resultant capacity based on weight.

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TANKNOLOGY™ TAG

A tag shall be installed on the apparatus, in a convenient location, which shall contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include:

- The capacity of the water and foam(s)
- The maximum fill and pressure rates
- The serial number of the tank
- The date of manufacture
- The tank manufacturer and contact information

The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

TANK LID

The tank cover shall be constructed of 1/2" thick PT3™ polypropylene and shall be UV-stabilized to incorporate a multi-piece locking design which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank, and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold-downs consisting of 2" minimum polypropylene dowels, spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall accommodate the necessary lifting hardware.

TANK FILL TOWER

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" PT3™ polypropylene and shall be a minimum dimension of 12" x 12" outer perimeter. The fill tower shall be blue in color, indicating that it is a water-only fill tower. The tower shall be located in the left front corner of the tank unless otherwise specified by the tank manufacturer to the purchaser. The tower shall have a 1/4" thick removable polypropylene screen and a PT3 polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid. Inside the fill tower there shall be a combination vent/overflow pipe.

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OVERFLOW AND VENT PIPE

The fill tower shall be fitted with an integral 4" ID schedule 40 P.V.C. combination overflow/vent pipe that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels, as required in NFPA 1901, so as to not interfere with rear tire traction.

TANK SUMP

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

TANK OUTLETS

There will be two (2) standard tank outlets:

- One (1) for the tank-to-pump suction line, which shall be a minimum of 4" coupling and
- One (1) for a tank fill line, which shall be a minimum of a 2" N.P.T. coupling.

All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

WATER TANK MOUNTING

The tank shall rest on the body cross members, spaced a maximum of 22" apart, and shall be isolated from the cross members through the use of 1/4" to 1/2" rubber, 2-1/2" wide. The tank shall sit, cradle-mounted, using four (4) stainless steel corner angles 3" x 3" x 1/4" thick. Angles are welded directly to the body cross members. The angles shall keep the tank from shifting left to right or front to rear. The angles are also isolated from the tank through the use of 1/4" to 1/2" rubber. The tank is designed on the free-floating suspension principle, and shall not require the use of hold downs. The tank shall be completely removable without disturbing or dismantling the apparatus body structure. The body or hose bed cross braces shall act as water tank retainers.

STAINLESS STEEL BODY & COMPARTMENT CONSTRUCTION

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The complete apparatus body and subframe shall be fabricated of 12-gauge, type-304-grade stainless steel sheeting with a tensile strength of 87,000 psi and a yield strength of 39,000 psi.

All body and compartment components shall be break-form design. Compartments are constructed of 12-gauge, type 304 stainless steel. This shall include compartment floors, side walls, and ceilings. No Exception. Compartments shall be formed from a single sheet of metal when possible. The exterior of the compartments shall be solid-seam welded. The corner seams shall be caulked with gray silicone caulking. All burrs shall be removed to eliminate sharp edges.

Interiors of compartments are to be left natural stainless steel with a swirl finish applied to give a lasting and pleasing appearance.

COMPARTMENT SUPPORTS

Compartment floor supports shall be provided, fabricated of 12-gauge stainless steel. Support members measuring 2.00" x 4.00" shall be installed under the compartment floors. The supports shall be formed, U-shaped sections that will extend the full width beneath the compartment floors. The upper body walkway floor will be supported in a similar fashion.

STAINLESS STEEL SUBFRAME

A 1.50" x 3.00" stainless steel tubular subframe shall be fabricated to support the body and tank. Structural stainless-steel rails shall run the full length of the body, across the top of the chassis frame rails. Stainless steel cross members measuring 3.00" shall be utilized to ensure rigidity, with cross members being spaced no more than 24" apart.

The subframe and cross members shall be MIG-welded. All compartments and all stainless-steel sheeting shall be TIG-welded with 308 stainless steel filler wire.

The complete body structure shall be secured to the chassis frame rails with high-grade, 5/8" diameter U-bolts.

Heavy duty rubber sill measuring 1.00" x 3.00" will be installed between the body subframe and chassis frame rails to prevent stress on the body and tank components. The rubber sill shall be retained by a full-length stainless-steel channel.

STEPPING, STANDING, & WALKING SURFACES

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All stepping, standing, and walking surfaces on the body shall meet NFPA 1901 anti-slip standards.

WHEEL WELLS

Twelve-gauge stainless steel wheel wells shall be an integral part of the body construction.

Wheel wells and cabinetry are to be designed so road debris will not be trapped on top of the cabinets.

Full, one-piece, circular, 24"-deep stainless-steel wheel well liners shall be installed. The fender flares shall be bright polished stainless steel, and shall be attached to the wheel well using stainless steel bolts.

WIRING ACCESS PANELS

Wiring access panels shall be provided in the body interior corner compartments. The panels shall be bolted in place to allow easy removal for service.

FUEL TANK ACCESS

If the apparatus is equipped with a rear, frame-mounted fuel tank, a removable, bolt-on access panel will be provided in the rear compartment wall.

REMOVAL OF BODY

The completed body with all related parts will be removable in its entirety, and shall accompany the water tank when removed.

FASTENERS

All fasteners used in securing components to the body shall be type 304 stainless steel.

COMPARTMENT VENTS

Compartments shall have a minimum of two (2) 4" louvered stainless-steel vents per compartment. They shall be installed in the rear wall of each compartment in a fashion to prevent foreign matter and water from entering.

COMPARTMENT DRAINS

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Duckbill-type rubber floor drains will be installed in the corners of the lower compartment floors.

PUMPER BODY - HINGED DOORS

LEFT LOW SIDE COMPARTMENTS

R1: 33.00" High x 28.00" Deep x 48.00" Wide
Door Opening: 29.50" High x 44.50" Wide

R2: 33.00" High x 28.00" Deep x 46.00" Wide
Door Opening: 29.50" High x 42.50" Wide

RIGHT COMPARTMENTS WITH RESCUE-STYLE HIGH SIDE

L1: 62.00" High x 13.00"/28.00" Deep x 48.00" Wide
Door Opening: 58.50" High x 42.00" Wide

L2: 29.00" High x 13.00" Deep x 64.00" Wide
Door Opening: 26.50" High x 59.00" Wide

L3: 62.00" High x 13.00"/28.00" Deep x 46.00" Wide
Door Opening: 58.50" High x 40.00" Wide

SQUARE BACK BODY DESIGN

The rear side body compartments and the body side walls shall extend all the way to the rear of the apparatus, and shall be a squared-off design.

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REAR BUMPER

The rear bumper shall be fabricated of 1.50" x 1.50" and 1.50" x 3.00" structural stainless-steel tubing. The bumper shall be fully-welded design, and shall be welded to the rear side body compartments.

The rear bumper shall be 16.00" deep, and shall run the full width of the vehicle.

BUMPER STEP SURFACE

The bumper step shall be covered with aluminum diamond plate, with welded end caps. The bumper stepping surface will comply with the latest version of NFPA 1901.

TOP SIDE BODY TRIM

The top of all side body compartments shall be covered with aluminum diamond plate.

Top overlay edges shall be angled downward, and shall extended over the outer body panel approximately 1.00".

REAR BODY TRIM

Any areas on the rear not covered with reflective chevron stripping shall be covered with aluminum diamond plate.

FRONT COMPARTMENT TRIM

Front exterior wall of the front compartments shall be covered with aluminum diamond plate.

SIDE BODY POST TRIM

Side body support posts shall be covered with aluminum diamond plate.

PUMP HOUSE TRIM

The front of the pump house shall be covered with aluminum diamond plate.

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STAINLESS STEEL RUB RAILS

Rub rails shall be provided and installed below each side compartment. The rub rail assembly shall be constructed of 1.00" wide x 1.50" high, heavy-duty, 14-gauge, 304-grade stainless steel tubing with black end caps and will be DA finished. Rub rails shall be bolted to the lower exterior edge of the apparatus body, with 0.50" nylon spacers installed between the body and the rub rail.

HOSE BED

A stainless-steel hose bed with swirl finish shall be located above the water tank. The hose bed front and side walls shall be free of all sharp edges, to prevent hose damage. There shall be two (2) removable floor sections, constructed of fiberglass grating, model T-3500, 1" "T" bars with 35% open area. This will allow for proper ventilation and drainage of hose.

HOSE BED DIVIDER

One (1) full-length, adjustable hose bed divider shall be located in the hose bed, and shall be fully-adjustable by means of stainless-steel uni-strut tracking. Tracking will be located at the front and rear of the hose bed.

The divider shall be one piece, and shall be constructed of 1/4" extruded aluminum. The divider's bottom T-bar shall extend the full length of the hose bed. A smooth, 1/2" diameter top edge is provided to prevent damage to hose.

The divider shall be bolted in place with stainless steel fasteners, and shall be easily adjusted from side to side with simple hand tools.

HOSE BED CAPACITY

The hose bed shall be capable of holding the following hose (listed left-to-right):

1500 Feet of 5.00" LDH hose

The balance of the right side of the hose bed will serve as a walkway to the front of the body.

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HOSE BED DUNNAGE AREA

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

HOSEBED TARP

A yellow vinyl hosebed cover shall be provided. The front edge of the cover shall attach with Velcro and twist-lock fasteners. The sides shall attach with shock-cord fasteners on the tarp and stainless-steel hooks on the body sides. The rear edge will consist of a weighted flap with straps.

HAND RAILS

Access hand rails shall be constructed of 1-1/4" in diameter extruded aluminum tubing with ribbed rubber inserts. Access rail escutcheons and brackets shall be chrome-plated, and shall be attached with stainless steel bolts. Anchoring of posts and framing members for handrails of all types shall be capable of withstanding a load of at least 225 pounds, applied in any direction, at any point along the rail.

Hand rails and handholds shall be constructed so that three points of contact (two hands and one foot, or one hand and two feet) can be maintained at all times while ascending and descending.

VERTICAL HAND RAILS

Two (2) 48" long hand rails shall be mounted vertically, at the rear of the apparatus, one (1) on each side of the rear compartment.

HORIZONTAL HAND RAILS

One (1) 72" long hand rail shall be mounted horizontally just below the hosebed.

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FOLDING ACCESS STEPS

Four (4) Innovative Controls folding steps shall be provided and installed. Each step shall be designed to exceed the strength, load, and traction requirements of NFPA. Each step shall be chrome-plated, and shall include a molded gasket to help prevent water ingress and keep the step mount from damaging painted surfaces. The step shall include a drain at the bottom to allow any water to escape the assembly.

The folding step shall be spring-loaded to hold the step in the upright, stowed position while in transit, and when not in use.

The step shall include a white LED step light.

Location: Rear of unit to allow easy access to the hose bed.

ADDITIONAL FOLDING ACCESS STEPS

Two (2) additional *Innovative Controls* folding steps shall be provided and installed. Each step shall be designed to exceed the strength, load, and traction requirements of NFPA. Each step shall be chrome-plated, and shall include a molded gasket to help prevent water ingress and keep the step mount from damaging painted surfaces. The step shall include a drain at the bottom to allow any water to escape the assembly.

The folding step shall be spring-loaded to hold the step in the upright, stowed position while in transit, and when not in use.

The step shall include a white LED step light.

Location will on the front face of compartment R1.

INTERMEDIATE REAR ACCESS STEP

A fixed step shall be provided on the right-side pump panel above the discharges. The top, bottom, and all sides of the step shall be covered with NFPA aluminum treadplate.

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ZICO HYDRAULIC PORTABLE TANK SYSTEM

A *Zico* Model #PTS-HA, portable tank system shall be provided. The tank lift includes two (2) self-contained hydraulic actuators. These hydraulic actuators create a strong, rigid system, designed to sustain a maximum load of 500 lbs.

The tank lift shall securely store the specified portable tank over the side compartments, and shall lower the portable tank to a convenient height at the flip of a switch for quick, easy, and safe retrieval.

An NFPA-compliant flashing light shall be provided on each end of the bracket, and shall be wired to the hazard light in the cab, to activate when system is out of the stowed position.

LOCATION: The portable tank bracket shall be installed on driver's side of the apparatus.

CONTROL SWITCH LOCATION

The *Zico* lift control switch shall be mounted on the driver's side pump panel.

TANK SIZE

The *Zico* tank lift system shall be sized to hold a 1500-gallon portable tank.

ZICO LIFT PORTABLE TANK - PAINTED ALUMINUM COVER

The complete top and side of the bracket shall be covered with a painted aluminum panel, designed to protect the portable tank. The cover shall be painted job color.

SUCTION HOSE MOUNTING BRACKET

One (1) aluminum diamond plate C-Tray shall be provided and mounted on top of the portable tank rack.

The hose shall be held in place with quick release holders.

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VEHICLE SUCTION HOSE COMPARTMENT

A compartment will be located on right side of the booster tank under the hose bed.

Compartment shall be fabricated of 1/2" polypropylene, and shall be designed to allow easy removal and storage of all specified equipment. Both suction hoses shall be separated by dividers or tubes.

The compartment will be designed to hold (2) 10ft suction hoses.

SUCTION HOSE COMPARTMENT DOOR

Compartment will have a single, vertically-hinged, aluminum diamond plate door with a stainless-steel D-ring latching handle. Door(s) shall be wired to the door ajar circuit.

HYDRAULIC LADDER RACK

The ground ladders shall be mounted above the right-side upper compartments in a specially- designed, swing-down cradle.

The cradle shall be electric/hydraulic operated. Dual hydraulic actuators will be furnished, one at each end of the bracket, at the bottom of the arms. Both pivot points will be a bolt-on spline connection.

The hydraulic actuators shall be operated by an independent hydraulic pump, powered off the chassis 12-volt power system. The bracket controls will be located in the right-side pump panel, so that the operator will be in full view of the area in which the ladders will be lowered.

The electric motor control shall have a master switch, and also be interlocked with a safety lock, to prevent travel operation if a compartment door in the bracket's travel path is open.

Ladders are secured to the bracket with spring-loaded clamps and guides hold the ladder from moving, once in place.

A mechanical safety lock is furnished to securely maintain the ladder bracket assembly in the travel position.

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Operating range of travel is from 0 to 90 degrees on the truck. 90 degrees being the travel position.

Ladder rack warning shall be provided through the hazard light, located in the cab, to show when the bracket is in the unlocked position. Additional flashing lights are provided on each end of the bracket, and a flashing light above the controls also show when the bracket is in the unlocked position. A rear audible alarm shall be provided to signal when the bracket is in motion.

The outward ends of the rack that protrude beyond the body of the apparatus shall have reflective material to indicate a hazard or an obstruction.

AIR BOTTLE STORAGE COMPARTMENT (DOUBLE COMPARTMENT)

One (1) spare air bottle compartment shall be provided in the front portion of the driver side rear wheel well area. The compartment will be capable of holding two (2) spare air bottles. The compartment shall be fabricated of stainless steel, and shall be lined to prevent vibration. The compartment shall have a drain hole in the floor.

COMPARTMENT DOORS

The wheel well compartments, where specified, will have vertically-hinged, painted, stainless steel doors with Southco #E3-17-22 all-stainless-steel door latches. The doors shall be labeled: "SPARE SCBA CYLINDER". Doors shall be wired to the door ajar circuit.

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AIR BOTTLE STORAGE COMPARTMENT (DOUBLE COMPARTMENT)

One (1) spare air bottle compartment shall be provided in the front portion of the officer side rear wheel well area. The compartment will be capable of holding two (2) spare air bottles. The compartment shall be fabricated of stainless steel, and shall be lined to prevent vibration. The compartment shall have a drain hole in the floor.

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SHELVING - PERMANENT

A total of one (1) permanent shelf shall be provided and installed in customer specified location.

The shelf will be constructed of stainless steel and be welded in place. Shelf shall have a front 2" lip.

POLY BOARD MOUNTING BOARD

1/2" textured black poly board will be installed on the back wall of the specified compartment to allow for equipment mounting. The board will be spaced 1/2" from the back wall of the compartment.

Quantity: (2)

Location:

TRAYS - PULL OUT

Two (2) Accuride slide-out trays shall be provided and installed in customer-specified locations.

Sliding trays, where specified, shall be mounted in a manner that provides for maximum overhead clearance.

The trays shall have a capacity of 300 pounds in the fully-extended position.

The side-mounted slides will be equipped with ball bearings for ease of operation.

Tray will lock, automatically, in the open and closed positions. Manual-type locks will not be acceptable.

LOCATION:

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VERTICAL PULL-OUT TOOL BOARDS

A total of two (2) vertically-mounted slide-out tool boards shall be provided and installed in customer-specified location.

The tool boards shall be fabricated of 3/16" aluminum pegboard sheeting with roller slides at the top and the bottom.

The tool boards will lock automatically in the open and closed positions. Manual-type locks will not be acceptable.

PERFORMANCE ADVANTAGE COMPANY - PAC-TRAC

A Pac-Trac tool mounting system shall be installed on the rear wall of the specified compartment(s).

LOCATION:

FLOOR MATTING

All compartment floors shall be lined with black Mateflex 13" X 13" x 9/16" interlocking tiles with tapered edging at the front compartment opening.

COMPARTMENT DOORS

Doors to be fabricated of 304 grade stainless steel with 18 gauge inner and outer panels.

The doors shall be 3/4" thick and reduce the compartment depth by approximately 5/8" with the door closed. The double-panel design provides strength and a tight fit with 5/8" insulation installed between the panels for sound dampening.

Doors shall be of a rigid design. Door outer panel edges will be folded and welded to the inner panel. Welding of the inner panel directly to the outer panel face shall not be permitted due to distortion caused by welding. The use of body filler prior to painting of the outer door panels shall not be permitted. **No Exception.**

Each door is to have closed-cell rubber seal to provide a weatherproof seal between the door and compartment.

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The compartment doors shall pivot on full-length stainless-steel piano hinges with a 3/16" pin diameter. Hinges shall be welded to compartment wall and bolted to doors with 10-24 stainless steel bolts.

Compartment doors will have stainless steel flush bent D-ring handles. Latching mechanism shall be non-locking safety slam positive latch. Gasket material is placed between the door handles and outer door panels to prevent electrolytic reaction between dissimilar metals to protect paint finish. Mechanism is enclosed in stainless steel not exposed to equipment stored in compartment.

An inner two-point latch shall be provided on the second door of all double doors with a rubber- covered pull cable, when applicable.

Interior of doors shall be left natural stainless steel with swirl finish applied to give a lasting and pleasing appearance.

DRIP RAILS

Bright aluminum J-channel shall be provided over each lower side body compartment, and at the front and rear of the compartments.

DOOR CLOSURES

All vertically-hinged doors shall have power lift, gas-filled cylinders installed.

Closure shall assist in the closing of door once it has past the halfway point.

DOOR CLOSURES

All horizontally-hinged doors shall have power lift, gas-filled cylinders installed. Doors shall be held open at a 90-degree angle to the body.

Closure shall assist in the closing of door once it has past the halfway point.

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12 VOLT ELECTRICAL SYSTEM

All wiring and electrical equipment shall meet NFPA 1901, (2016 edition,) and SAE standards.

A master optical warning device switch that energizes all of the optical warning devices shall be provided.

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

All wiring to be GXL ultra high-temperature cross link type. Wiring installed by the builder shall be run in protective split loom where exposed to the outside. Where wires pass through body compartments or panels, grommets, snap bushings, or compression fittings shall be utilized.

All wiring harnesses and associated wiring shall be secured with nylon, ultraviolet-resistant cable ties or bolted to the body with cable clamps.

Polyolefin "heat shrink" tubing with adhesive or Deutsch water tight connectors shall be used on all exterior wiring connections.

Flexible, non-conductive polyurethane film shall be sprayed on all terminal studs, relays, starter, batteries, etc., to prevent corrosion.

All wiring shall be protected by automatic reset-circuit breakers which conform to SAE standards. Any required exterior fuses shall be protected by an environmentally-sealed fuse holder.

The breakers shall be selected to prevent wire damage when subjected to extreme current overload. Wiring to be color, function, and/or number coded.

An Innovative Controls power distribution relay board shall be utilized. The distribution board contains independent switching relays with selectable input polarity. Relays can be connected in either their normally-open or normally-closed positions. The relay board features heavy-duty components, visual diagnostics, and load management inputs. The system is user-friendly for trouble shooting.

A wiring diagram for the body electrical system shall be included with the apparatus.

Interlaken Fire Department

JUNCTION BOX

The electrical junction box for all 12-volt wiring shall be located in a convenient location. It will be recessed into the compartment wall so as not to protrude into the storage area. It shall be protected by a removable access panel.

The compartment shall be sealed and weatherproof. All components in compartment shall have identification tags.

CLEARANCE LIGHTS

All required clearance lights shall be provided, at the rear and on each side of the unit, to meet federal regulations. All lights will be (LED) Light Emitting Diode type with a five (5) year warranty.

On apparatus 30 feet in length or longer, a Trucklite model 60072Y amber LED turn signal light with stainless steel flange shall be mounted, one (1) each side, in rear wheel well area at approximately running board height.

LED STEP AREA LIGHTING

Four (4) step area lights shall be provided, one (1) mounted each side on the front compartment face to illuminate the panel running board steps, and two (2) mounted at the rear of the unit to illuminate the rear tailboard step. These lights shall be activated when the parking brake is applied. Whelen 3SCOCD CR series 3.00" round LED lights shall be utilized. Depending on body application, the lights will either be mounted in a rubber grommet or surface mounted with a chrome flange.

HAZARD LIGHT

A red, flashing light shall be located in the driving compartment, and shall be illuminated automatically whenever the apparatus parking brake is not fully engaged **and:**

- Any passenger or equipment compartment door is open
- Any ladder or equipment rack is not in the stowed position
- A stabilizer system is deployed
- A powered light tower is extended
- Any other device is opened, extended, or deployed that creates a hazard or is likely to cause damage to the apparatus if the apparatus is moved.

The lights shall be marked "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

LICENSE PLATE LIGHT

Interlaken Fire Department

One (1) Trucklite model 15055 LED license plate light and bracket shall be provided on the rear of the unit.

EMERGENCY WARNING LIGHT SWITCH CONTROLS

All warning light switches shall be mounted in the cab in a readily accessible location.

A master switch and individual switches to be provided to allow preselection of lights. The light switches are to be "rocker" type with an internal indicator light to show when the switch is energized. All switches to be properly identified and mounted in a removable panel for ease in servicing. Identification of the switches shall be done by either printing or etching on the switch panel.

WHELEN M6FCV4 QUAD CLUSTER REAR DOT LIGHTING

BACKUP LIGHTS

Two (2) Whelen model M6BUW Super LED backup lights

STOP/TAIL LIGHTS

Two (2) Whelen model M6BTT series Super LED Brake/Tail lights

DIRECTIONAL LIGHTS

Two (2) Whelen model M6T series Super LED arrow directional turn signal lights

The backup lights, stop/tail lights, and directional lights along with rear lower-level warning lights shall be installed on the lower rear face of the unit and shall be recessed in chrome plated flange.

Interlaken Fire Department

COMPARTMENT LIGHTS

SoundOff Signal model ECVCLLED43, 43” LED compartment lighting shall be provided in each compartment. The lighting shall be mounted behind the door track on both sides of the compartment.

All compartment lighting shall be automatic by the opening and closing of the door.

All main apparatus body compartments shall have door ajar switches.

COMPARTMENT LIGHTS

SoundOff Signal model ECVCLLED21, 21” LED compartment lighting shall be provided to provide in each compartment. The lighting shall be mounted behind the door jamb on each side of the compartment.

All compartment lighting shall be automatic by the opening and closing of the door.

All main apparatus body compartments shall have door ajar switches.

BACK-UP ALARM

There shall be electronic beeper that sounds when the truck is placed in reverse. The beeper shall be heard over all engine noise, by persons near or on the truck.

LED GROUND LIGHTING

The apparatus shall be equipped with lighting capable of providing illumination at a minimum level of two (2) foot candle on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level. Lighting designed to provide illumination on areas under the driver and crew riding area exits, which shall be activated automatically when the parking brake is set. Lights shall be installed in a manner that illuminates all walkways and steps for safe operation of the apparatus.

Interlaken Fire Department

TecNiq E10-WSOO-1 6.00" LED lights mounted in a stainless-steel bracket shall be utilized.

One (1) light located each side under the panel running boards.

Two (2) lights mounted under the rear step.

One (1) light located each side under the cab steps.

PUMP COMPARTMENT LIGHT

One (1) SoundOff model ECVCSLLED10-10" LED pump compartment light shall be provided within the pump enclosure. The control switch shall be located on the pump operator's panel.

ENGINE COMPARTMENT LIGHT

There shall be a TecNiq E18 high output utility light with switch, mounted inside engine compartment, to provide sufficient lighting for vehicle maintenance.

HOSE BED LIGHTS

There shall be two (2) TecNiq (model E10-W000-1) 6.00" LED lights with clear lens lights mounted at the front of the hose bed. The lights will be activated by a switch located on the pump panel.

DUNNAGE AREA LIGHTS

There shall be two (2) Whelen 3SCOCD CR series 3.00" round LED lights provided and mounted in the dunnage area to provide adequate illumination of this area. The lights will be activated when the parking brake is applied.

Interlaken Fire Department

ELECTRICAL LOAD MANAGER

The apparatus shall be equipped with an Innovative Control Electrical Load Manager (ELM) for performing electrical load management. The ELM shall have 16 programmable outputs to supply warning and load switching requirements. Outputs 1-12 shall be independently programmable to activate during the scene mode, the response mode, or both.

These outputs can also be programmed to activate with the ignition or master warning switch, or to sequence and shed along with the priority. Output 13 shall be designated to activate a fast idle system. Output 14 shall provide a low voltage warning for an isolated battery. Output 15 is a user configurable output and shall be programmable for activating between 10.5 and 15 volts. Output 16 shall provide a low voltage alarm that activates at the NFPA required 11.8 volts.

The ELM shall have a digital display to indicate system voltage in normal operation mode and also indicate the output configuration during programming mode. The ELM shall be protected against reverse polarity and shorted outputs and be enclosed in a metal enclosure to enhance EMI/RFI protection. The ELM shall have an operating temperature range of -40C to +105C (-40F to +220F).

WHELEN NFPA APPROVED UPPER-LEVEL LIGHT PACKAGE

ZONE A - FRONT UPPER

A Whelen Freedom IV model F4N0VLED 60" lightbar shall be mounted centered on the front of the cab roof. The lightbar shall be 60.00 inches in length. The lightbar shall feature four (4) corner Red Linear-LEDs and four (4) front Linear LEDs (2) Red & (2) Clear lights. The clear lights shall be disabled when the parking brake is engaged.

ZONE C - UPPER

Two (2) model L31HRFN Super Red LED 360 beacon lights mounted on the upper rear light stanchions.

Interlaken Fire Department

WHELEN LOWER-LEVEL LIGHTING

ZONE A - LOWER

Two (2) M7 series Super LED lights with chrome bezels mounted on the lower portion of the front grille.

ZONE B & D- SIDE LOWER

Two (2) M4 series Super LED lights with chrome bezels mounted one (1) each side on the front lower corner of the cab fenders.

Two (2) M6 series Super LED lights with chrome bezels mounted one (1) each side in the rear body fender area.

ZONE C - LOWER

Two (2) M6 Super LED lights mounted on the lower rear of the apparatus in M6FCV4 chrome housing.

LOWER-LEVEL LIGHT LENS COLOR

The lower-level lights shall have red lenses.

WHELEN 295SLSA1 ELECTRONIC SIREN AMPLIFIER

A Whelen Model 295SLSA1 electronic siren amplifier shall be provided and installed in the cab within reach of the officer and driver.

Standard features include Radio Rebroadcast, Public Address, Manual, Wail, Yelp, Airhorn, and Piercer tones. PTT (Push to Talk) switch on unidirectional microphone over-rides all siren functions. All siren functions are backlit in a soft, non-glare green for ease of nighttime visibility. Contemporary styling complements most Whelen power controls and Traffic Advisor Control Consoles for proper aesthetic stacking. An adjustable bail bracket allows mounting in a variety of positions. Each model is mounted on a slide out chassis with an integral quick disconnect plug for ease of maintenance or replacement. Park Kill feature, disables the siren when the vehicle is in park. Volume control knob on faceplate standard.

Selectable 100- or 200-watt output, standard.
Si-Test®, silent self-diagnostic.

Interlaken Fire Department

5-year warranty on amplifier.

Size: 2-1/2" (64mm) H x 6" (152mm) W x 6-7/8" (175mm) D

SIREN SPEAKER

One (1), 100-watt siren speaker shall be recess mounted in the front bumper.

LED TELESCOPIC SCENE LIGHT

Two (2) Fire Research *Spectra* LED model SPA530-Q15 side mount push up telescopic lights shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 2 3/4" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamphead shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 12 volts DC, draw 13 amps, and generate 15,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall be no more than 5-3/8" high by 14" wide by 3-3/4" deep and have a heat resistant handle. The lamphead and mounting arm shall be powder coated. The LED scene light shall be for fire service use.

Location of light shall be:

Interlaken Fire Department

PAINT AND PREPARATION

All metal surfaces will be properly sanded, prepared and finished ready for our Axalta Coating Systems pretreatment. This is done to insure optimum adhesion, corrosion resistance, and durability.

After pretreatment, 1220S Axalta Coating Systems 5000 URO primer filler is applied designed to fill any minor surface defects and provide an adhesion layer between the pretreatment and the Imron Base Coat/Clear Coat. This is also applied to improve color gloss, retention, and durability of the paint.

Next the URO primer will be sanded to a smooth prepainting surface. The surface will be decontaminated and prepared for application of High Solids Axalta Coating Systems Productive Base Coat/Clear Coat finish to complete the finished paint process.

A full inspection is performed of Defects, Depth Imagery, Gloss, Film Build, Color Match and Texture, all to meet or exceed Axalta Coating Systems OEM fleet finish specifications.

Body assemblies that cannot be finish painted upon assembly shall be painted prior to finish assembly. All doors are removed and painted separate from the body.

Prior to reassembly and reinstallation of lights, handrails, door hardware, and any miscellaneous items; a gasket material or silicone sealant shall be applied to prevent damage to the finish painted surfaces and to protect against electrolysis between dissimilar metals.

Touch up paint shall be provided for each color paint used.

The complete apparatus body will be painted a single color to match the color of the cab. The cab shall remain as painted from the chassis supplier.

Paint Color _____ - Paint # _____

Interlaken Fire Department

LETTERING

Lettering shall be provided. It shall be computer generated, non-reflective, Gold Metallic Acrylic Vinyl Applique with a black border.

Computer generated lettering provides a proportional layout design and durable finish.

Included will be a maximum of sixty-five (65) three (3) inch letters.

REFLECTIVE STRIPING

A 4" wide white reflective stripe shall be applied to the unit in a straight line.

Per NFPA 15.9.3.1 this shall include at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

REFLECTIVE MATERIAL - INTERIOR CAB DOOR

The cab doors shall have a minimum of 96 square inches of reflective material affixed to the inside of each door per NFPA 1901 14.1.6

REFLECTIVE CHEVRON - NFPA 15.9.3.2

50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" in width.

Stripe Colors will be Red & Yellow.

Interlaken Fire Department

EQUIPMENT

The following equipment shall be provided along with any necessary mounting brackets.

NFPA EQUIPMENT CLARIFICATION

Any equipment specified in the "Minor Equipment" section (e.g., hose, nozzles, adapters, AED, traffic cones, traffic safety vests, etc.) of NFPA 1901 for each apparatus classification which is not specified in this proposal will be considered to be customer supplied.

SUCTION HOSE

Three (3) Harrington 6" x 10' light weight PVC suction hose with male and 6" long handled female couplers.

10' FOLDING LADDER

One (1) Alco-Lite model #FL-10, 10' folding ladder shall be provided. Ladder shall consist of 1-section aluminum ladder with rubber feet and shall meet or exceed the latest NFPA standards.

14' ROOF LADDER

One (1) Alco-Lite model #PRL-14, 14' roof ladder shall be provided. Ladder shall consist of a single section aluminum ladder with folding steel hooks on one end and steel spikes on the other end. Ladder shall meet or exceed the latest NFPA standards.

24' EXTENSION LADDER

One (1) Alco-Lite #PEL-24, 24' extension ladder. Ladder shall consist of 2 aluminum sections. Ladder shall meet or exceed the latest NFPA standards.

8' FIBERGLASS PIKE POLE

One (1) Duo-Safety Type FP, 8' fiberglass handle pike pole shall be provided consisting of an 8' hollow fiberglass pole 1-3/4" OD with a painted steel pike riveted to the pole.

Interlaken Fire Department

PIKE POLE

One (1) Duo-Safety Type FP, 10' fiberglass handle pike pole shall be provided consisting of a 10' hollow fiberglass pole 1-3/4" OD with a painted steel pike riveted to the pole.

10LB ABC EXTINGUISHER

One (1) Amerex model FE-419-10 w/#812 Bracket, 10LB ABC Stored Pressure Dry Chemical Extinguisher shall be provided and mounted in customer specified location.

CO2 EXTINGUISHER

One (1) Amerex model FE-331 w/#811 bracket, 15lb CO2 Fire Extinguisher shall be provided and mounted in customer specified location.

2-1/2 GALLON PRESSURE WATER EXTINGUISHER

One (1) Amerex model FE-240 w/810 bracket, 2-1/2-gallon pressure water extinguisher shall be provided and mounted in customer specified location.

WHEEL CHOCKS

Two (2) Zico AC32 wheel chocks will be provided and mounted under the left front compartment.

SPANNER WRENCH SET W/HYDRANT WRENCH

One (1) set of Kochek style K45-3-KBR spanner wrenches shall be provided and mounted in customer-specified location. Includes (1) hydrant wrench and (2) spanner wrenches with mounting bracket.

Location:

SPANNER WRENCH SET

One (1) set of Kochek style K46-2-KBR spanner wrenches shall be provided and mounted in customer specified location. Includes (2) spanner wrenches with mounting bracket.

Location:

Interlaken Fire Department

FREIGHTLINER M2 106 SPECIFICATION PROPOSAL

Description	Weight Front	Weight Rear
Price Level		
M2 PRL-27M (EFF:MY24 ORDERS)		
Data Version		
SPECPRO21 DATA RELEASE VER 022		
Vehicle Configuration		
M2 106 PLUS CONVENTIONAL CHASSIS 2024 MODEL YEAR SPECIFIED SET BACK AXLE - TRUCK STRAIGHT TRUCK PROVISION, NON-TOWING LH PRIMARY STEERING LOCATION	5,709	3,450
General Service		
TRUCK CONFIGURATION DOMICILED, USA 50 STATES (INCLUDING CALIFORNIA AND CARB OPT-IN STATES) FIRE SERVICE EMERGENCY VEHICLES BUSINESS SEGMENT LIQUID BULK COMMODITY TERRAIN/DUTY: 100% (ALL) OF THE TIME, IN TRANSIT, IS SPENT ON PAVED ROADS MAXIMUM 8% EXPECTED GRADE SMOOTH CONCRETE OR ASPHALT PAVEMENT - MOST SEVERE IN-TRANSIT (BETWEEN SITES) ROAD SURFACE MEDIUM TRUCK WARRANTY EXPECTED FRONT AXLE(S) LOAD : 14600.0 lbs EXPECTED REAR DRIVE AXLE(S) LOAD : 31000.0 lbs EXPECTED GROSS VEHICLE WEIGHT CAPACITY : 45600.0 lbs		
Truck Service		
FIRE TANK - NO MAIN DRIVELINE DRIVEN SPLIT-SHAFT PTO/PUMP 4 GUYS EXPECTED BODY/PAYLOAD CG HEIGHT ABOVE FRAME "XX" INCHES : 32.0 in		
Engine		
CUM L9 360EV HP @ 2200 RPM, 2200 GOV RPM, 1150 LB-FT @ 1200 RPM, R/F/E	640	30

Interlaken Fire Department

Description	Weight Front	Weight Rear
Electronic Parameters		
60 MPH ROAD SPEED LIMIT		
CRUISE CONTROL SPEED LIMIT SAME AS ROAD SPEED LIMIT		
PTO MODE BRAKE OVERRIDE - SERVICE BRAKE APPLIED		
PTO GOVERNOR RAMP RATE - 100 RPM PER SECOND		
REGEN INHIBIT SPEED THRESHOLD - 5 MPH		
Engine Equipment		
2010 EPA/CARB/GHG21 CONFIGURATION		
2008 CARB EMISSION CERTIFICATION - EXEMPTED VEHICLE; NO CLEAN IDLE LABEL REQUIRED		
STANDARD OIL PAN		
ENGINE MOUNTED OIL CHECK AND FILL		
SIDE OF HOOD AIR INTAKE WITH NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER		
LN 12V 320 AMP 4962PGH PAD MOUNT ALTERNATOR	10	
(2) DTNA GENUINE, FLOODED STARTING, MIN 2000CCA, 370RC, THREADED STUD BATTERIES	10	
BATTERY BOX FRAME MOUNTED		
STANDARD BATTERY JUMPERS		
SINGLE BATTERY BOX FRAME MOUNTED LH SIDE UNDER CAB		
WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN		
NON-POLISHED BATTERY BOX COVER		
POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DRIVER SEAT	2	
PROGRESSIVE LOW VOLTAGE DISCONNECT AT 12.3 VOLTS FOR DESIGNATED CIRCUITS		
CUMMINS TURBOCHARGED 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE		
STANDARD MECHANICAL AIR COMPRESSOR GOVERNOR		
AIR COMPRESSOR DISCHARGE LINE		
ELECTRONIC ENGINE INTEGRAL SHUTDOWN PROTECTION SYSTEM		
C-BRAKE BY JACOBS WITH LOW/OFF/HIGH BRAKING DASH SWITCH	80	
RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH HORIZONTAL TAILPIPE EXITING FORWARD OF REAR TIRES	10	5

Interlaken Fire Department

Description	Weight Front	Weight Rear
ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD REGENERATION AND VIRTUAL REGENERATION REQUEST SWITCH IN CLUSTER		
STANDARD EXHAUST SYSTEM LENGTH		
RH HORIZONTAL TAILPIPE, EXIT FORWARD OF REAR TIRES	20	20
6 GALLON DIESEL EXHAUST FLUID TANK		
100 PERCENT DIESEL EXHAUST FLUID FILL		
LH MEDIUM DUTY STANDARD DIESEL EXHAUST FLUID TANK LOCATION		
DIESEL EXHAUST FLUID PUMP MOUNTED AFT OF DIESEL EXHAUST FLUID TANK		
STANDARD DIESEL EXHAUST FLUID TANK CAP		
AIR POWERED ON/OFF ENGINE FAN CLUTCH		
AUTOMATIC FAN CONTROL WITH DASH SWITCH AND INDICATOR LIGHT, NON ENGINE MOUNTED		
CUMMINS SPIN ON FUEL FILTER		
COMBINATION FULL FLOW/BYPASS OIL FILTER		
900 SQUARE INCH ALUMINUM RADIATOR	15	
ANTIFREEZE TO -34F, OAT (NITRITE AND SILICATE FREE) EXTENDED LIFE COOLANT		
GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT		
CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES		
RADIATOR DRAIN VALVE		
LOWER RADIATOR GUARD		
ALUMINUM FLYWHEEL HOUSING		
ELECTRIC GRID AIR INTAKE WARMER		
DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH		

Transmission

ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION	200	60
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Transmission Equipment

ALLISON VOCATIONAL PACKAGE 198 -
AVAILABLE ON 3000/4000 PRODUCT FAMILIES
WITH VOCATIONAL MODEL EVS

ALLISON VOCATIONAL RATING FOR FIRE
TRUCK/EMERGENCY VEHICLE APPLICATIONS
AVAILABLE WITH ALL PRODUCT FAMILIES

PRIMARY MODE GEARS, LOWEST GEAR 1,
START GEAR 1, HIGHEST GEAR 6, AVAILABLE
FOR 3000/4000 PRODUCT FAMILIES ONLY

Interlaken Fire Department

Description	Weight Front	Weight Rear
<p>SECONDARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY</p> <p>PRIMARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE</p> <p>SECONDARY SHIFT SCHEDULE RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE</p> <p>PRIMARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE</p> <p>SECONDARY SHIFT SPEED RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE</p> <p>2ND GEAR ENGINE BRAKE PRESELECT RANGE WITH LESS AGGRESSIVE DOWNSHIFT STRATEGY</p> <p>ENGINE BRAKE RANGE ALTERNATE PRESELECT RECOMMENDED BY DTNA AND ALLISON, THIS DEFINED BY ENGINE AND VOCATIONAL USAGE</p> <p>FUEL SENSE 2.0 DISABLED - PERFORMANCE - TABLE BASED</p> <p>DRIVER SWITCH INPUT - DEFAULT - NO SWITCHES</p> <p>QUICKFIT BODY LIGHTING CONNECTOR UNDER CAB, WITH BLUNTCUTS</p> <p>ELECTRONIC TRANSMISSION WIRING TO CUSTOMER INTERFACE CONNECTOR</p> <p>MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN</p> <p>PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED</p> <p>TRANSMISSION PROGNOSTICS - ENABLED 2013</p> <p>WATER TO OIL TRANSMISSION COOLER, IN RADIATOR END TANK</p> <p>TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK</p> <p>SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)</p>		

Front Axle and Equipment

DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE	10
MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES	
FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING	
CAST IRON OUTBOARD FRONT BRAKE DRUMS	

Interlaken Fire Department

Description	Weight Front	Weight Rear
FRONT BRAKE DUST SHIELDS	5	
FRONT OIL SEALS		
VENTED FRONT HUB CAPS WITH WINDOW, CENTER AND SIDE PLUGS - OIL		
STANDARD SPINDLE NUTS FOR ALL AXLES		
MERITOR AUTOMATIC FRONT SLACK ADJUSTERS		
TRW TAS-85 POWER STEERING	40	
POWER STEERING PUMP		
2 QUART SEE THROUGH POWER STEERING RESERVOIR		
CURRENT AVAILABLE SYNTHETIC 75W-90 FRONT AXLE LUBE		
Front Suspension		
14,600# TAPERLEAF FRONT SUSPENSION	170	
MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION		
FRONT SHOCK ABSORBERS		
Rear Axle and Equipment		
RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE		300
5.63 REAR AXLE RATIO		
IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING		
MXL 176T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES	5	5
DRIVER CONTROLLED TRACTION DIFFERENTIAL - SINGLE REAR AXLE		20
(1) DRIVER CONTROLLED DIFFERENTIAL LOCK REAR VALVE FOR SINGLE DRIVE AXLE		
INDICATOR LIGHT FOR EACH DIFFERENTIAL LOCKOUT SWITCH, ENGAGE <5 MPH, DISENGAGE >25 MPH		
MERITOR 16.5X7 P CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES		20
FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING		
BRAKE CAMS AND CHAMBERS ON FORWARD SIDE OF DRIVE AXLE(S)		
WEBB CAST IRON REAR BRAKE DRUMS		50
REAR OIL SEALS		
BENDIX EVERSURE LONGSTROKE HEAVY DUTY 30/36 1-DRIVE AXLE SPRING PARKING CHAMBERS		
HALDEX AUTOMATIC REAR SLACK ADJUSTERS WITH STAINLESS STEEL CLEVIS PINS		

Interlaken Fire Department

Description	Weight Front	Weight Rear
CURRENT AVAILABLE SYNTHETIC 75W-90 REAR AXLE LUBE		
Rear Suspension		
31,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD FOR FIRE/EMERGENCY SERVICE SPRING SUSPENSION - NO AXLE SPACERS STANDARD AXLE SEATS IN AXLE CLAMP GROUP FORE/AFT CONTROL RODS		180
Brake System		
AIR BRAKE PACKAGE WABCO 4S/4M ABS WITH TRACTION CONTROL REINFORCED NYLON, FABRIC BRAID AND WIRE BRAID CHASSIS AIR LINES FIBER BRAID PARKING BRAKE HOSE STANDARD BRAKE SYSTEM VALVES STANDARD AIR SYSTEM PRESSURE PROTECTION SYSTEM STD U.S. FRONT BRAKE VALVE RELAY VALVE WITH 5-8 PSI CRACK PRESSURE, NO REAR PROPORTIONING VALVE BW AD-9 BRAKE LINE AIR DRYER WITH HEATER AIR DRYER FRAME MOUNTED STEEL AIR BRAKE RESERVOIRS PULL CABLE ON WET TANK, PETCOCK DRAIN VALVES ON ALL OTHER AIR TANKS	20	
Wheelbase & Frame		
4975MM (188 INCH) WHEELBASE		
7/16X3-9/16X11-1/8 INCH STEEL FRAME (11.11MMX282.6MM/0.437X11.13 INCH) 120KSI	210	270
2450MM (96 INCH) REAR FRAME OVERHANG FRAME OVERHANG RANGE: 91 INCH TO 100 INCH	-50	210
CALC'D BACK OF CAB TO REAR SUSP C/L (CA) : 130.32 in		
CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA) : 127.32 in		
CALC'D FRAME LENGTH - OVERALL : 331.34 in		
CALCULATED FRAME SPACE LH SIDE : 95.6 in		
CALCULATED FRAME SPACE RH SIDE : 77.72 in		
SQUARE END OF FRAME		
FRONT CLOSING CROSSMEMBER		
STANDARD WEIGHT ENGINE CROSSMEMBER		

Interlaken Fire Department

Description	Weight Front	Weight Rear
STANDARD CROSSMEMBER BACK OF TRANSMISSION		
STANDARD MIDSHIP #1 CROSSMEMBER(S)		
STANDARD REARMOST CROSSMEMBER		
STANDARD SUSPENSION CROSSMEMBER		
Chassis Equipment		
THREE-PIECE 14 INCH CHROMED STEEL BUMPER WITH COLLAPSIBLE ENDS	30	
FRONT TOW HOOKS - FRAME MOUNTED	15	
BUMPER MOUNTING FOR SINGLE LICENSE PLATE		
FENDER AND FRONT OF HOOD MOUNTED FRONT MUDFLAPS		
GRADE 8 THREADED HEX HEADED FRAME FASTENERS		
EXTERIOR HARNESSES WRAPPED IN ABRASION TAPE, SECONDARY COVERING, & CONNECTOR PROTECTION		
2D DXF/PDF VEHICLE DRAWING		
TANK BODY 1501 TO 3000 GALLONS		
CLEAR FRAME RAILS 48 INCHES FROM BACK OF CAB INSIDE/OUTBOARD AND BELOW BOTH FRAME RAILS		
Fuel Tanks		
50 GALLON/189 LITER SHORT RECTANGULAR ALUMINUM FUEL TANK - LH	20	
RECTANGULAR FUEL TANK(S)		
POLISHING OF FUEL/HYDRAULIC TANK(S) WITH PAINTED BANDS		
FUEL TANK(S) FORWARD		
POLISHED STAINLESS STEEL STEP FINISH		
FUEL TANK CAP(S)		
DAVCO 245 FUEL/WATER SEPARATOR WITH WATER IN FUEL SENSOR	5	
EQUIFLO INBOARD FUEL SYSTEM		
HIGH TEMPERATURE REINFORCED NYLON FUEL LINE		
Tires		
MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES	50	
MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL REAR TIRES		232
Hubs		
CONMET PRESET PLUS PREMIUM IRON FRONT HUBS		
WEBB IRON REAR HUBS		70

Interlaken Fire Department

Wheels	Description	Weight Front	Weight Rear
	ALCOA ULA18X 22.5X8.25 10-HUB PILOT 5.81 INSET ALUMINUM DISC FRONT WHEELS	-62	
	ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM REAR WHEELS POLISHED DISC SIDE FRONT WHEELS WITH DURA-BRIGHT FINISH POLISHED OUTER (DISHED SIDE) REAR WHEELS WITH OUTER ONLY DURA-BRIGHT FINISH FRONT WHEEL MOUNTING NUTS REAR WHEEL MOUNTING NUTS NYLON WHEEL GUARDS FRONT AND REAR ALL INTERFACES		-56
Cab Exterior	106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB AIR CAB MOUNTING		
	CAB ROOF REINFORCEMENTS FOR ROOF MOUNTED COMPONENTS LH AND RH GRAB HANDLES	2	
	HOOD MOUNTED CHROMED PLASTIC GRILLE CHROME HOOD MOUNTED AIR INTAKE GRILLE FIBERGLASS HOOD		
	CAB FLOOR, TOE BOARD AND FIREWALL HEAT SHIELD	5	
	DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS WITH DUAL LANYARDS DUAL ELECTRIC HORNS DUAL HORN SHIELDS	8	
	REAR LICENSE PLATE MOUNT END OF FRAME INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZEL		
	LED AERODYNAMIC MARKER LIGHTS DAYTIME RUNNING LIGHTS		
	OMIT STOP/TAIL/BACKUP LIGHTS AND PROVIDE WIRING WITH SEPARATE STOP/TAIL WIRES TO 7 FEET BEYOND END OF FRAME		-5
	STANDARD FRONT TURN SIGNAL LAMPS DUAL WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LED LIGHTS AND LH AND RH REMOTE		
	DOOR MOUNTED MIRRORS		
	102 INCH EQUIPMENT WIDTH LH AND RH 8 INCH BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS		

Interlaken Fire Department

Description	Weight Front	Weight Rear
STANDARD SIDE/REAR REFLECTORS		
RH AFTERTREATMENT SYSTEM CAB ACCESS WITH POLISHED DIAMOND PLATE COVER		
COMPOSITE EXTERIOR SUN VISOR	10	
63X14 INCH TINTED REAR WINDOW		
TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS		
RH AND LH ELECTRIC POWERED WINDOWS	4	
1-PIECE SOLAR GREEN GLASS WINDSHIELD		
2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED		

Cab Interior

RUGGED TRIM PACKAGE
 GRAY & CARBON VINYL INTERIOR "RUGGED"
 CARBON WITH PREMIUM GUNMETAL ACCENT
 (RUGGED)
 MOLDED PLASTIC DOOR PANEL
 MOLDED PLASTIC DOOR PANEL
 BLACK MATS WITH SINGLE INSULATION
 (1)DASH MOUNTED 12V POWER OUTLET
 (1)DASH MOUNTED DUAL 2.1 AMP USB-C
 CHARGER
 FORWARD ROOF MOUNTED CONSOLE
 LH AND RH DOOR STORAGE POCKETS
 INTEGRATED INTO MOLDED DOOR PANELS
 DIGITAL ALARM CLOCK IN DRIVER DISPLAY
 (2) CUP HOLDERS LH AND RH DASH
 M2/SD DASH
 HEATER, DEFROSTER AND AIR CONDITIONER
 STANDARD HVAC DUCTING
 MAIN HVAC CONTROLS WITH RECIRCULATION
 SWITCH
 STANDARD HEATER PLUMBING WITH BALL
 SHUTOFF VALVES AT SUPPLY LINES ONLY
 VALEO HEAVY DUTY A/C REFRIGERANT
 COMPRESSOR
 BINARY CONTROL, R-134A
 PREMIUM INSULATION
 SOLID-STATE CIRCUIT PROTECTION AND
 FUSES
 12V NEGATIVE GROUND ELECTRICAL SYSTEM
 PREMIUM LED CAB LIGHTING
 DOOR LOCKS AND IGNITION SWITCH KEYED
 THE SAME
 KEY QUANTITY OF 2

Interlaken Fire Department

Description	Weight Front	Weight Rear
LH AND RH ELECTRIC DOOR LOCKS		
SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT WITH NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR	50	
SEATS INC 911 UNIVERSAL SERIES HIGH BACK NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE AND NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR	25	10
LH AND RH INTEGRAL DOOR PANEL ARMRESTS		
BLACK CORDURA PLUS CLOTH DRIVER SEAT COVER		
BLACK CORDURA PLUS CLOTH PASSENGER SEAT COVER		
NFPA 1901-2009 HIGH VISIBILITY ORANGE SEAT BELTS		
ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN	10	
4-SPOKE 18 INCH (450MM) LEATHER WRAPPED STEERING WHEEL WITH CHROME SWITCH BEZELS		
DRIVER AND PASSENGER INTERIOR SUN VISORS		

Instruments & Controls

DIGITAL PANEL LAMP DIMMER SWITCH IN DRIVER DISPLAY

NO INSTRUMENT PANEL-DRIVER

INTEGRATED UPPER & LOWER STORAGE PANELS

ENGINE REMOTE INTERFACE WITH PARK BRAKE INTERLOCK

BRIGHT ARGENT FINISH GAUGE BEZELS

LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM

DUAL NEEDLE PRIMARY AND SECONDARY AIR PRESSURE GAUGE

INTAKE MOUNTED AIR RESTRICTION INDICATOR WITHOUT GRADUATIONS

ELECTRONIC CRUISE CONTROL WITH CONTROLS ON STEERING WHEEL SPOKES

IGNITION SWITCH WITH NON REMOVABLE KEY

PREMIUM INSTRUMENT CLUSTER WITH 5.0 INCH TFT COLOR DISPLAY

HEAVY DUTY ONBOARD DIAGNOSTICS INTERFACE CONNECTOR LOCATED BELOW LH DASH

2 INCH ELECTRIC FUEL GAUGE

ENGINE REMOTE INTERFACE NOT CONFIGURED

Interlaken Fire Department

Description	Weight Front	Weight Rear
QUICKFIT POWERTRAIN INTERFACE CONNECTOR UNDER CAB WITH CAPS		
QUICKFIT PROGRAMMABLE INTERFACE CONNECTOR(S) UNDER CAB WITH CAP		
ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE		
2 INCH TRANSMISSION OIL TEMPERATURE GAUGE		
ELECTRONIC OUTSIDE TEMPERATURE SENSOR DISPLAY IN DRIVER MESSAGE CENTER		
ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY		
ELECTRONIC STABILITY CONTROL, 4X2 W/SAFETY MIN BODY WEIGHT EXCEEDS 4,000LBS REQ		
ELECTRIC ENGINE OIL PRESSURE GAUGE		
NO OVERHEAD INSTRUMENT PANEL		
CUSTOM POSITIONING & LOCATING SYSTEM		
AM/FM/WB WORLD TUNER RADIO WITH SIRIUSXM, BLUETOOTH, IPOD INTERFACE, USB AND AUXILIARY INPUTS, J1939	10	
DASH MOUNTED RADIO		
(2) RADIO SPEAKERS IN CAB		
AM/FM ANTENNA MOUNTED ON FORWARD LH ROOF		
INTEROPERABLE SDAR ANTENNA		
STANDARD RADIO WIRING WITH STEERING WHEEL CONTROLS		
ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE, WITHOUT ODOMETER		
STANDARD VEHICLE SPEED SENSOR		
ELECTRONIC 3000 RPM TACHOMETER		
DETROIT CONNECT PLATFORM HARDWARE		
TMC RP1226 ACCESSORY CONNECTOR LOCATED BEHIND PASSENGER SIDE REMOVEABLE DASH PANEL		
IGNITION SWITCH CONTROLLED ENGINE STOP		
(2) OVERHEAD MOUNTED LANYARD CONTROLS: (1) OFFICER AIR HORN AND (1) DRIVER AIR HORN		
DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY		
SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY		
ROTARY HEADLAMP SWITCH, MARKER LIGHTS/HEADLIGHTS SWITCH WITH PULL OUT FOR OPTIONAL FOG/ROAD LAMPS		

Interlaken Fire Department

Description	Weight Front	Weight Rear
ONE VALVE PARKING BRAKE SYSTEM WITH DASH VALVE CONTROL AUTONEUTRAL AND WARNING INDICATOR		
SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, HEADLAMP FLASH, WASH/WIPE/INTERMITTENT		
INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH 40 AMP (20 AMP PER SIDE) TRAILER LAMP CAPACITY		
Design		
PAINT: ONE SOLID COLOR		
Color		
CAB COLOR A: Gloss White		
BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT		
SUNVISOR PAINTED SAME AS CAB COLOR A		
STANDARD E COAT/UNDERCOATING		
Certification / Compliance		
U.S. FMVSS CERTIFICATION, EXCEPT SALES CABS AND GLIDER KITS		
Secondary Factory Options		
CORPORATE PDI CENTER OPTION INSTALLATION/MODIFICATION ONLY		
TOTAL VEHICLE SUMMARY		

Interlaken Fire Department

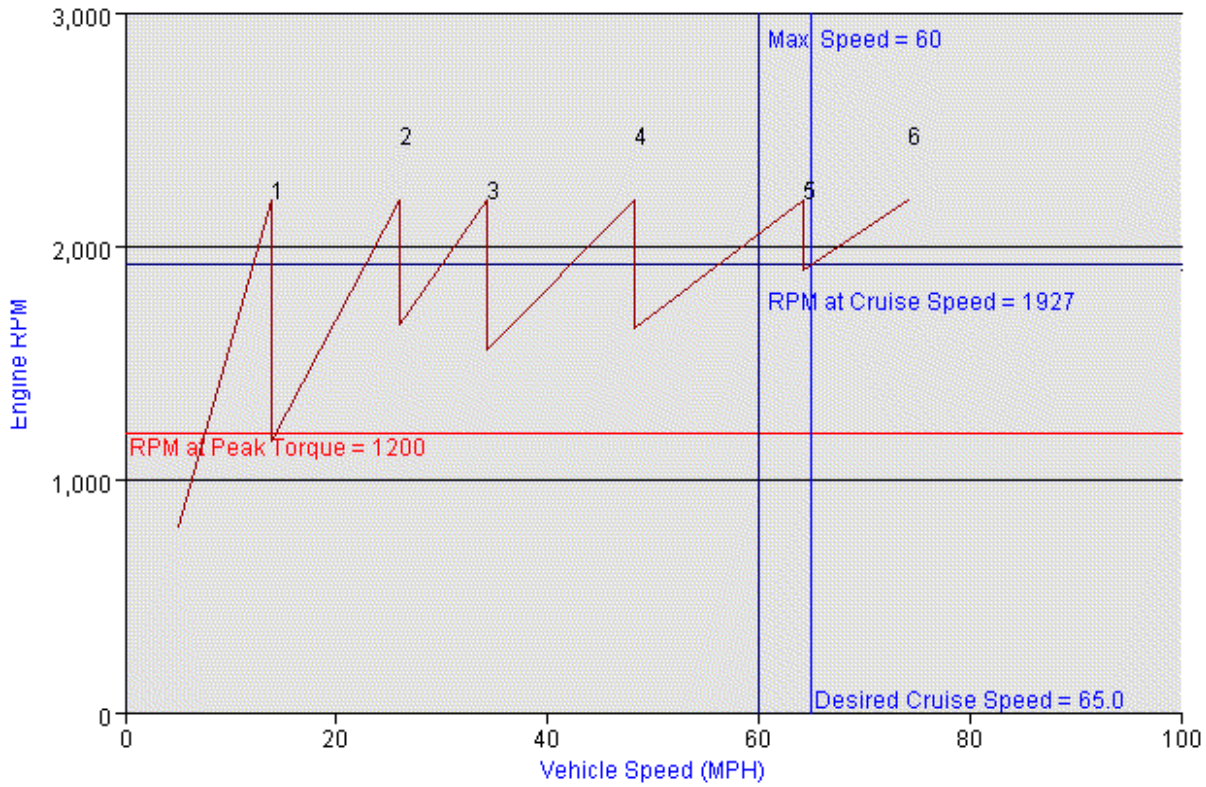
Weight Summary			
	Weight Front	Weight Rear	Total Weight
Factory Weight ⁺	7288 lbs	4871 lbs	12159 lbs
Total Weight⁺	7288 lbs	4871 lbs	12159 lbs

(+) Weights shown are estimates only.
If weight is critical, contact Customer Application Engineering.

(***) All cost increases for major components (Engines, Transmissions, Axles, Front and Rear Tires) and government mandated requirements, tariffs, and raw material surcharges will be passed through and added to factory invoices.

Interlaken Fire Department

SHIFT CHART



Interlaken Fire Department

VEHICLE SPECIFICATIONS SUMMARY - SHIFT CHART

Model		M2106
Cab Size (829)	106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB	
Desired Cruise Speed (mph)		65.0
Engine (101)	CUM L9 360EV HP @ 2200 RPM, 2200 GOV RPM, 1150 LB-FT @ 1200 RPM, R/F/E	
RPM at Peak Torque		1200
Governed RPM		2200
Transmission (342)	ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION	
Gear Ratio: LL		N/A
Gear Ratio: L		N/A
Gear Ratio: 1		3.49
Gear Ratio: 2		1.86
Gear Ratio: 3		1.41
Gear Ratio: 4		1
Gear Ratio: 5		0.75
Gear Ratio: 6		0.65
Gear Ratio: 7		N/A
Gear Ratio: 8		N/A
Gear Ratio: 9		N/A
Gear Ratio: 10		N/A
Gear Ratio: 11		N/A
Gear Ratio: 12		N/A
Gear Ratio: 13		N/A
Gear Ratio: 14		N/A
Gear Ratio: 15		N/A
Gear Ratio: 16		N/A
Gear Ratio: 17		N/A
Gear Ratio: 18		N/A
Auxiliary Transmission (352)	NO AUXILIARY TRANSMISSION	
Low Gear Ratio		N/A
High Gear Ratio		N/A
Transfer Case (373)	NO TRANSFER CASE	
Low Gear Ratio		N/A
High Gear Ratio		N/A
Rear Axle (420)	RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE	
Number of Speeds		1
Rear Axle Gear Ratio(s)		5.63 REAR AXLE RATIO
Rear Tires (094)	MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL REAR TIRES	
Revolutions per Mile		486

TABLE SUMMARY - SHIFT CHART

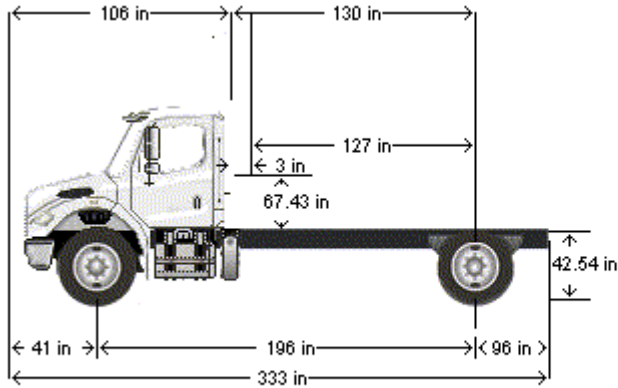
Interlaken Fire Department

Transmission Gear	Transmission Gear Ratio	Rear Axle Ratio	Overall Gear Ratio	Percent Split	RPM After Shift	MPH at Peak Torque RPM	MPH at Governed
1	3.49	5.63	19.65	N/A	800	7.5	13.8
2	1.86	5.63	10.47	87.6	1172	14.1	25.9
3	1.41	5.63	7.94	31.9	1668	18.7	34.2
4	1.00	5.63	5.63	41.0	1560	26.3	48.2
5	0.75	5.63	4.22	33.3	1650	35.1	64.3
6	0.65	5.63	3.66	15.4	1907	40.5	74.2

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

Interlaken Fire Department

DIMENSIONS



VEHICLE SPECIFICATIONS SUMMARY - DIMENSIONS

Model	M2106
Wheelbase (545)	4975MM (196 INCH) WHEELBASE
Rear Frame Overhang (552)	2450MM (96 INCH) REAR FRAME OVERHANG
Fifth Wheel (578)	NO FIFTH WHEEL
Mounting Location (577)	NO FIFTH WHEEL LOCATION
Maximum Forward Position (in)	0
Maximum Rearward Position (in)	0
Amount of Slide Travel (in)	0
Slide Increment (in)	0
Desired Slide Position (in)	0.0
Cab Size (829)	106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB
Sleeper (682)	NO SLEEPER BOX/SLEEPERCAB
Exhaust System (016)	RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH HORIZONTAL TAILPIPE EXITING FORWARD OF REAR TIRES

Interlaken Fire Department

TABLE SUMMARY - DIMENSIONS

Dimensions	Inches
Bumper to Back of Cab (BBC)	106.3
Bumper to Centerline of Front Axle (BA)	40.7
Front Axle to Back of Cab (AC)	65.6
Min. Cab to Body Clearance (CB)	3.0
Back of Cab to Centerline of Rear Axle(s) (CA)	130.3
Effective Back of Cab to Centerline of Rear Axle(s) (Effective CA)	127.3
Back of Cab Protrusions (Exhaust/Intake) (CP)	2.0
Back of Cab Protrusions (Side Extenders/Trim Tab) (CP)	0.0
Back of Cab Protrusions (CNG Tank)	0.0
Back of Cab Clearance (CL)	3.0
Back of Cab to End of Frame	226.8
Cab Height (CH)	67.4
Wheelbase (WB)	195.9
Frame Overhang (OH)	96.5
Overall Frame Length	331.3
Overall Length (OAL)	333.1
Rear Axle Spacing	0.0
Unladen Frame Height at Centerline of Rear Axle	42.5

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.

Interlaken Fire Department

GVWR

VEHICLE SPECIFICATIONS SUMMARY - GVWR

Model	M2106
Cab Size (829)	106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB
Expected Front Axle(s) Load (lbs)	14600.0
Expected Pusher Axle(s) Load (lbs)	0.0
Expected Rear Axle(s) Load (lbs)	31000.0
Expected Tag Axle(s) Load (lbs)	0.0
Expected GVW (lbs)	45600
Expected GCW (lbs)	0.0
Front Axle (400)	DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE
Front Suspension (620)	14,600# TAPERLEAF FRONT SUSPENSION
Front Hubs (418)	CONMET PRESET PLUS PREMIUM IRON FRONT HUBS
Front Disc Wheels (502)	ALCOA ULA18X 22.5X8.25 10-HUB PILOT 5.81 INSET ALUMINUM DISC FRONT WHEELS
Front Tires (093)	MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES
Front Brakes (402)	MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
Steering Gear (536)	TRW TAS-85 POWER STEERING
Rear Axle (420)	RS-30-185 31,000# U-SERIES FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
Rear Suspension (622)	31,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD FOR FIRE/EMERGENCY SERVICE
Rear Hubs (450)	WEBB IRON REAR HUBS
Rear Disc Wheels (505)	ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM REAR WHEELS
Rear Tires (094)	MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL REAR TIRES
Rear Brakes (423)	MERITOR 16.5X7 P CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES
Pusher / Tag Axle (443)	NO PUSHER OR TAG AXLE
Pusher / Tag Suspension (626)	NO PUSHER OR TAG SUSPENSION
Pusher / Tag Hubs (449)	NO PUSHER OR TAG HUBS
Dead/Pusher/Tag Disc Wheels (509)	NO PUSHER/TAG DISC WHEELS
Pusher / Tag Tires (095)	NO PUSHER/TAG TIRES
Pusher / Tag Brakes (456)	NO PUSHER/TAG BRAKES

Interlaken Fire Department

TABLE SUMMARY - GVWR

	Front	Rear
Axle Component Weight Ratings		
Axles	14700	31000
Suspension	14600	31000
Hubs	14700	31000
Brakes	14700	32500
Wheels	14800	40000
Tires	14780	33080
Power Steering	18000	N/A
GAWR (per axle)	14600	31000
GAWR (per axle system)	14600	31000
Expected Load (per axle system)	14600	31000
GVWR due to Frame	90000	
GVWR due to Transmission	300000	
Vehicle GVWR Summary		
Calculated GVWR	45600	
Expected GVWR	45600	
<i>All weights displayed in pounds</i>		

Performance calculations are estimates only. If performance calculations are critical, please contact Customer Application Engineering.