



6/11/2024

Flagstaff Fire Department, AZ
Two (2) Freightliner 114SD BME Cascade Tenders EM10673-0003
Build Location: Boise, Idaho

Proposal Price	\$993,776.00	
Arizona State Sales Tax @ 5.60%		55,651.46
Phoenix Sales Tax @ 2.70%		26,831.95
PHX Transportation Plan Tax @ 0.3% of \$13,886.00		83.32
<i>Total Bid Price Including Sales Tax</i>		<i>\$1,076,342.73</i>
Less payment upon completion @ factory discount	(11,297.00)	
Subtotal including all pre-pay discounts	\$982,479.00	
Arizona State Sales Tax @ 5.60%		55,018.82
Phoenix Sales Tax @ 2.70%		26,526.93
PHX Transportation Plan Tax @ 0.3% of \$13,886.00		83.32
<i>Total Bid Price Including Sales Tax</i>		<i>\$1,064,108.07</i>

Terms:

Price Expiration: The above pricing is valid until July 30, 2024.

Delivery: Based on BME's current delivery schedule the apparatus would be ready for delivery within **18 to 20** months from receipt of chassis at the manufacturing facility. Delivery is subject to change pending BME's delivery schedule at time of order. This time does not include any possible delays that may be caused by national disasters or pandemic.

Payment Terms:

- a. If pre-payment discount options are elected, the following terms will apply:
 - i. **Payment Upon Completion at Factory Discount:** If elected, final payment is due prior to apparatus leaving the factory for delivery. If payment is not processed upon receipt of invoice the discount total will be required in addition to the invoice amount.
 - b. If pre-payment discount options are not elected standard payment terms will apply: Final payment will be due 10 days after the apparatus leaves the factory for delivery. If payment is not made at that time a late fee will be applicable.
 - c. If Customer elects to purchase the proposed apparatus using a credit card a convenience fee will be applicable.

Change Orders: Changes processed after order placement will be processed per the following structure; deductions will be based on the option price at time of order placement, additions will be based on current pricing levels at time of change request.

Consortium Purchase: The proposal is based on the unit being purchased through H-GACBuy (Houston-Galveston-Area-Council Cooperative Purchasing Program) utilizing contract FS12-23 valid until 11/30/2027, with a registered End User member Interlocal Contract "ILC." It is the purchaser's responsibility to determine if the use of consortiums meets their purchasing requirements. More information can be found at hgacbuy.org.

Component/Chassis Price Volatility: BME and the dealer have absolutely no control over chassis pricing and/or delivery. BME will issue a quote to the dealer for the chassis price, but pricing can/will be subject to any increases or surcharges issued by the manufacturer. Significant components, i.e., tanks, pumps, lighting, and or controls, could be subject to an increase if it is over 3%. Any price increase for components/chassis of Product will be passed through to the Customer and will be documented on a Change Order.

Performance Bond: A performance bond is not included in the above price.

Transportation: Transportation of the apparatus to be driven from the factory to the customer's location is included in the above pricing. If customer elects to drive the apparatus from the factory, **\$6,000.00 (or \$3,000.00 per unit)** may be deducted from the purchase price. If this option is elected payment in full and proof of insurance must be provided prior to leaving the factory and the customer is responsible for compliance with all state, local and federal DOT requirements.

Inspection Trips: Two (2) factory inspection trips for four (4) customer representatives is included in the above pricing. The inspection trips will be scheduled at times mutually agreed upon between the manufacture's representative and the customer, during the window provided by the manufacturer. Airfare, lodging and meals while at the factory are included. In the event the customer is unable to travel to the factory or the factory is unable to accept customers due to the restrictions caused by a national disaster or pandemic then the Dealership reserves the right to use forms of electronic media to accomplish the intention of the inspection trips. Every effort will be made to make the digital media as thorough as possible to satisfy the expectations of the of the customer. If the customer elects to forgo an inspection trip **\$2,000.00** per traveler (per trip) will be deducted from the final invoice.

Acceptance of Proposal: If the customer wishes to purchase the proposed apparatus Hughes Fire Equipment will provide the Customer its form of Purchase Agreement for the Customer's review and signature. If the Customer desires to use its standard form of purchase order as the Purchase Agreement, the purchase order is subject to review for any required revisions prior to acceptance. **All purchase orders shall be made out to Hughes Fire Equipment.**

Mark Wilson

BME Fire Trucks, LLC



FIRE TRUCKS

FOR
FLAGSTAFF FIRE DEPARTMENT

**3,000 GALLON TENDER
"CASCADE"**

DETERMINATION OF APPARATUS WEIGHT

10673-0003

06/11/24

BME Fire Trucks, LLC

BME Fire Trucks, LLC. shall submit estimated "in-service" weight analysis required by applicable NFPA standards. This Excel computer weight analysis shall break down all major components of the apparatus and shall show the impact on percentage-of-load on the front and rear axles, total weight, and weight on each tire set.

The analysis shall evenly distribute the NFPA required minimum payload allowance or estimated equipment payload as provided by the purchaser into the specified compartments. The allowance for personnel, hose loads, water and foam fluids, and required NFPA equipment shall be outlined individually in the analysis and placed on the apparatus in its specific intended position.

CENTER-OF-GRAVITY ANALYSIS

BME Fire Trucks, LLC. shall perform an estimated center of gravity calculation as required by the applicable section of NFPA standards. This calculation shall include tilt angles, the estimated right to left load distribution, and load on each axle, including all specified major components.

LOW VOLTAGE TEST REQUIRMENTS

The fire apparatus low voltage electrical system shall be tested as required by this section and the test results shall be certified by the apparatus manufacturer. The certification shall be delivered to the purchaser with the documentation for the completed apparatus. The tests shall be performed when the air temperature is between 0 degrees Fahrenheit and 110 degrees Fahrenheit.

TEST SEQUENCE

The three tests defined below shall be performed in the order in which they appear. Before each test, the chassis batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. The failure of any of these tests shall require a repeat of the test sequence.

RESERVE CAPACITY TEST

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

ALTERNATOR PERFORMANCE TEST AT IDLE

BME Fire Trucks, LLC

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

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

The total continuous electrical load shall be applied with the chassis engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two hours. The activation of the electrical system load management system shall be permitted during this test. The activation of an alarm due to excessive chassis battery discharge, as detected by the system required by NFPA (current edition), or an electrical system voltage of less than 11.8 volts direct current for a 12 volt direct current nominal system, for more than 120 seconds, shall be considered a failure of this test.

LOW VOLTAGE ALARM TEST

Following the completion of the tests described above, the chassis engine shall be turned off. With the chassis engine turned off, the total continuous electrical load shall be applied and shall continue to be applied until the excessive battery discharge alarm activates. The chassis battery voltage shall be measured at the battery terminals.

The test shall be considered to be a failure if the low voltage alarm has not yet sounded 140 seconds after the voltage drops to 11.70 volts direct current for a 12 volt direct current nominal system. The chassis battery system shall then be able to restart the chassis engine. The failure of the chassis battery system to restart the chassis engine shall be considered a failure of this test.

The completed fire apparatus shall undergo a complete 12 volt electrical load and performance testing per applicable sections of NFPA standards with inspection and test sheets included in delivery documentation.

DOCUMENTATION

The apparatus manufacturer shall provide the results of the low-voltage electrical system performance test, certified in writing, with the documentation provided to the purchaser at the time of delivery of the completed apparatus.

The test results shall consist of the following documents:

- (1) Documentation of the electrical system performance tests.
- (2) A written electrical load analysis, including the following:
 - (a) The nameplate rating of the alternator.
 - (b) The alternator rating under the conditions specified in NFPA 1906 (current edition).
 - (c) Each of the component loads specified that make up the minimum continuous electrical load.

BME Fire Trucks, LLC

- (d) Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load.
- (e) Each individual intermittent electrical load.

TEST RESULTS

BME Fire Trucks LLC. shall provide results of the apparatus testing and shall certify the following:

The weight of the completed apparatus, when loaded to its estimated in service weight, does not exceed the GVWR and GAWR of the chassis.

The complete unit, when loaded to its estimated in service weight, meets the weight distribution and vehicle stability requirements, as defined in the current NFPA guidelines.

The unit meets all required federal standards pertaining to the manufacturer and completion of the apparatus and a label tag has been affixed to the apparatus by the manufacturer stating same.

BME Fire Trucks LLC. shall provide all testing results, including engine, speed, acceleration, road ability, braking, and auxiliary braking to the Purchaser at the time of delivery.

DELIVERY REQUIREMENTS

The bidder shall not be responsible for delays in delivery due to strikes, acts of God, failure of suppliers to deliver, chassis shortage and other reasons beyond the reasonable control of the builder. Should BME Fire Trucks, LLC. be unable to comply with the proposed delivery date, we shall immediately contact the purchaser regarding delay information and actions to be taken by the company.

This vehicle shall be F.O.B. the BME Fire Trucks facility in Boise Idaho. Dealer shall be responsible for arrangement of delivery from factory.

GENERAL WARRANTY PROVISIONS

All materials and workmanship herein specified, including all equipment furnished, shall be guaranteed for a period of one (1) year after the acceptance date of the apparatus, unless otherwise noted, with the exception of any normal maintenance services or adjustments which shall be required. Under this warranty, BME Fire Trucks, LLC. shall be responsible for the costs of repairs to the apparatus that have been caused by defective workmanship or materials during this period.

This warranty shall not apply to the following:

- Any component parts or trade accessories such as chassis, engines, tires, pumps, valves, signaling devices, batteries, electric lights, bulbs, alternators, and all other installed equipment and accessories, in as much as they are usually warranted separately by their respective manufacturers, or are subject to normal wear and tear.

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- Failures resulting from the apparatus being operated in a manner or for a purpose not recommended by the apparatus manufacturer.
- Loss of time or use of the apparatus, inconvenience or other incidental expenses.
- Any apparatus which has been repaired or altered without written consent or outside of the apparatus manufacturer's factory and or authorized service center in any way that affects its stability, or which has been subject to misuse, negligence, or accident.
- Delivery of the apparatus to repair site.

DISCLAIMER

NO WARRANTIES ARE GIVEN BEYOND THOSE DESCRIBED HEREIN. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. THE COMPANY SPECIFICALLY DISCLAIMS WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OTHER REPRESENTATIONS TO THE USER/PURCHASER AND ALL OTHER OBLIGATIONS OR LIABILITIES. FURTHER, THE COMPANY EXCLUDES LIABILITY FOR CONSEQUENTIAL AND INCIDENTAL DAMAGES, ON THE PART OF THE COMPANY OR SELLER. No person is authorized to give any other warranties or to assume any liabilities on the Company's behalf unless made or assumed in writing by the seller; and no other person is authorized to give any warranties or to assume any liabilities on the seller's behalf unless made or assumed in writing by the seller.

OBTAINING SERVICE

Return the vehicle to any BME Fire Trucks, LLC. dealer/authorized service center; Return the vehicle to BME Fire Trucks, LLC. or contact BME Fire Trucks, LLC.. BME Fire Trucks, LLC. shall be solely responsible for determining the extent of repair under the terms of the warranty. Transportation costs shall be the responsibility of the purchaser.

MATERIAL AND WORKMANSHIP

All equipment provided shall be guaranteed to be new and of current manufacture, and unless specified otherwise, shall meet all requirements of these specifications and prevailing NFPA documents and be in condition at time of delivery for use as specified for this type of apparatus.

All workmanship shall be of the highest quality and accomplished in a professional manner so as to insure a functional apparatus with a high quality aesthetic appearance.

BME Fire Trucks, LLC

The construction shall be rugged and ample safety factors shall be provided to carry the loads specified to meet both on and off road requirements.

The apparatus shall be designed and the equipment mounted with due consideration to the distribution of load between the front and rear axles, so all specified equipment, with a full complement of personnel, can be carried without damage to the apparatus.

BODY AND STRUCTURAL WARRANTY

BME Fire Trucks, LLC. shall warrant each new apparatus body, if used in a normal and reasonable manner, against structural defects caused by defects in material, design or workmanship for a period of ten (10) years, covering parts & labor to the original purchaser which shall start on day of acceptance.

This warranty shall not apply to:

- Normal maintenance services or adjustments
- To any vehicle which will have been repaired or altered outside of our factory in any way so as, in the judgment of BME Fire Trucks, LLC., to affect it's stability, nor which has been subject to misuse, negligence, or accident, nor to any vehicle made by us which will have been operated to a speed exceeding the factory rated speed, or loaded beyond the factory rated load capacity.
- Commercial chassis and associated equipment furnished with chassis, signaling devices, generators, batteries, or other trade accessories as they are usually warranted separately by their respective manufacturers.
- Shipping costs of parts or apparatus for purposes of repair or replacement of parts. This warranty is in lieu of all other warranties, expressed or implied. All other representations as to the original purchaser and all other obligations or liabilities, including for incidental or consequential damage on the company's behalf unless made in writing by the company.

PLUMBING WARRANTY

The stainless steel fire pump plumbing shall carry a ten (10) year parts and labor warranty against defects in workmanship and perforation corrosion.

AKRON VALVE WARRANTY

The Akron valves shall carry a ten (10) year parts and labor manufacturer's warranty. Provisions of this warranty shall be provided with the completed apparatus documentation.

PAINT WARRANTY

BME Fire Trucks, LLC

BME Fire Trucks, LLC. shall provide a seven (7) year paint warranty which shall cover peeling and/or de-lamination of the top coat and other layers of paint, cracking or checking, loss of gloss caused by cracking, checking or chalking, and any paint failure caused by defective paint materials covered by the paint manufacturer's material warranty.

CHASSIS WARRANTY

The specified chassis shall be provided with the chassis manufacturer's warranty. The exact provisions of this warranty shall be supplied with the completed apparatus documentation.

APPARATUS OPERATION MANUAL(S)

BME Fire Trucks, LLC. shall provide (2) electronic apparatus operational manual(s) on a USB thumb drive.

CHASSIS SPECIFICATIONS

FREIGHTLINER 114SD PLUS CONVETIONAL CHASSIS

2025 MODEL YEAR SPECIFIED

SET BACK AXLE – TRUCK

STRAIGHT TRUCK PROVISION, NON-TOWING

LH PRIMARY STEERING LOCATION

DOMICILED, USA 50 STATES (INCLUDING CALIFORNIA AND CARB OPT-IN STATES)

EPA EMISSIONS CERTIFICATION FOR 50 STATE REGISTRATION – CARB EXEMPT, FIRE AND EMERGENCY VEHICLES ONLY (INCLUDES 6X4 INCH LABEL SHIPPED LOOSE

EXPECTED FRONT AXLE(S) LOAD: 20,000 lbs

EXPECTED REAR DRIVE AXLE(S) LOAD: 46,000 lbs

EXPECTED GROSS VEHICLE WEIGHT CAPACITY: 66,000 lbs

FIRE TANK – NO MAIN DRIVELINE DRIVEN SPLIT-SHAFT PTO/PUMP

CUM X12 500EV HP @ 1900 RPM, 1700 LB-FT @ 1000 RPM, 2000 GOV RPM, R/F/E

68 MPH ROAD SPEED LIMIT

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CRUISE CONTROL SPEED LIMIT SAME AS ROAD SPEED LIMIT

PTO MODE ENGINE RPM LIMIT – 1350 RPM

PTO RPM WITH CRUISE SET SWITCH – 1100 RPM

PTO RPM WITH CRUISE RESUME SWITCH – 1100 RPM

PTO GOVERNOR RAMP RATE – 100 RPM PER SECOND

CRUISE CONTROL BUTTON PTO CONTROL

PTO SPEED 1 SETTING – 900 RPM

PTO SPEED 2 SETTING – 1100 RPM

PTO SPEED 3 SETTING – 1300 RPM

ENGINE FAN ENABLED WITH RETARDER

PTO MINIMUM RPM – 900

REGEN INHIBIT SPEED THRESHOLD – 5 MPH

PTO 1, DASH SWITCH, ENGAGE WHILE DRIVING

PTO 2, DASH SWITCH, STATIONARY OPERATION

EPA 2010/GHG 2024 CONFIGURATION

STANDARD OIL PAN

OIL FILL AND DIPSTICK LOCATED FOR ENHANCED SERVICEABILITY

SIDE OF HOOD AIR INTAKE WITH NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER

DR 12V 300 AMP 40-SI BRUSHLESS PAD MOUNT ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE

(3) DTNA GENUINE, FLOODED STARTING, MIN 2850CCA, 525RC, THREADED STUD BATTERIES

BATTERY BOX FRAME MOUNTED

STANDARD BATTERY JUMPERS

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BME Fire Trucks, LLC

BATTERY BOX FRAME MOUNTED LH SIDE 60 INCHES AFT OF 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 WITH LOCKING PROVISION
MOUNTED OUTBOARD DRIVER SEAT

POSITIVE AND NEGATIVE POSTS FOR JUMPSTART LOCATED ON FRAME NEXT TO STARTER

CUMMINS NATURALLY ASPIRATED 25.9 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE

GVG, FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING

CUMMINS INTEBRAKE WITH HIGH MED LOW BRAKE WITH BRAKE LAMPS

RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH
RH HORIZONTAL TAILPIPE

ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD ACTIVE REGENERATION AND
VIRTUAL REGENERATION REQUEST SWITCH IN CLUSTER AND DASH MOUNTED INHIBIT SWITCH

STANDARD EXHAUST SYSTEM LENGTH

RH STANDARD HORIZONTAL TAILPIPE

13 GALLON DIESEL EXHAUST FLUID TANK

100 PERCENT DIESEL EXHAUST FLUID FILL

STANDARD DIESEL EXHAUST FLUID PUMP MOUNTING

POLISHED ALUMINUM DIAMOND PLATE DIESEL EXHAUST FLUID TANK COVER

LH MEDIUM DUTY STANDARD DIESEL EXHAUST FLUID TANK LOCATION

STANDARD DIESEL EXHAUST FLUID TANK CAP

HORTON 2-SPEED DRIVEMASTER ADVANTAGE POLAREXTREME FAN DRIVE

AUTOMATIC FAN CONTROL WITH DASH SWITCH AND INDICATOR LIGHT, NON ENGINE MOUNTED

CUMMINS SPIN ON FUEL FILTER

BME Fire Trucks, LLC

COMBINATION FULL FLOW/BYPASS OIL FILTER

1500 SQUARE INCH ALUMINUM RADIATOR

ANTIFREEZE TO -60F, ETHYLENE GLYCOL PRECHARGED SCA HEAVY DUTY COOLANT

GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT

CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES

RADIATOR DRAIN VALVE

PHILLIPS-TEMRO 1500 WATT/115 VOLT BLOCK HEATER

CHROME ENGINE HEATER RECEPTACLE MOUNTED UNDER LH DOOR

DELCO 12V 39MT HD/OCP STARTER WITH THERMAL PROTECTION AND INTEGRATED MAGNETIC SWITCH

ALLISON 4500 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION

ALLISON VOCATIONAL PACKAGE 265-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

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

S5 PERFORMANCE LIMITING PRIMARY SHIFT SCHEDULE, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY

FIXED SECONDARY SHIFT SCHEDULE, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY

2000 RPM PRIMARY MODE SHIFT SPEED

2000 RPM SECONDARY MODE SHIFT SPEED

2ND GEAR ENGINE BRAKE ALTERNATE PRESELECT WITH MODERATE DOWNSHIFT STRATEGY

FUEL SENSE 2.0 DISABLED PERFORMANCE – TABLE BASED

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DRIVER SWITCH INPUT – DEFAULT – NO SWITCHES

DIRECTION CHANGE ENABLED WITH MULTIPLEXED SERVICE BRAKES – ALLISON 5TH GEN TRANSMISSION

QUICKFIT BODY LIGHTING CONNECTOR UNDER CAB, WITH BLUNTCUTS

ELECTRONIC TRANSMISSION WIRING TO CUSTOMER INTERFACE CONNECTOR

(2) CUSTOMER INSTALLED CHELSEA 280 SERIES PTO'S

PTO MOUNTING, LH SIDE AND TOP RH SIDE OF MAIN TRANSMISSION ALLISON

MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN

PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED

TRANSMISSION PROGNOSTICS – ENABLED 2013

WATER TO OIL TRANSMISSION COOLER, FRAME MOUNTED

TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK

SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)

CUMMINS-MERITOR MFS-20-133A 20,000# FL1 71.0 INCH KPI/3.74 INCH DROP SINGLE FRONT AXLE

MERITOR 16.5X6 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

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

STANDARD KING PIN BUSHINGS

TRW THP-60 POWER STEERING WITH RCH45 AUXILIARY GEAR

BME Fire Trucks, LLC

POWER STEERING PUMP

4 QUART POWER STEERING RESERVOIR

OIL/AIR POWER STEERING COOLER

CURRENT AVAILABLE SYNTHETIC 75W-90 FRONT AXLE LUBE

20,000# TAPERLEAF FRONT SUSPENSION

MAINTENANCE FREE RUBBER BUSHINGS – FRONT SUSPENSION

FRONT SHOCK ABSORBERS

CUMMINS-MERITOR RT-46-160 46,000# R-SERIES TANDEM REAR AXLE

4.56 REAR AXLE RATIO

IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING

MXL 18T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES

MXL 17T MERITOR EXTENDED LUBE INERAXLE DRIVELINE WITH HALF ROUND YOKES

DRIVER CONTROLLED TRACTION DIFFERENTIAL – BOTH TANDEM REAR AXLES

(1) INTERAXLE LOCK VALVE, (1) DRIVER CONTROLLED DIFFERENTIAL LOCK FORWARD-REAR AXLE VALVE AND (1) REAR-REAR AXLE VALVE

INDICATOR LIGHT FOR EACH INTERAXLE LOCKOUT SWITCH, DISENGAGE INTERAXLE LOCK WITH IGNITION OFF OR VEHICLE SPEED EXCEEDING 25MPH

INDICATOR LIGHT FOR EACH DIFFERENTIAL LOCKOUT SWITCH, ENGAGE AT SPEEDS 5 MPH OR LESS, DISENGAGE W/IGN OFF OR SPEEDS EXCEEDING 25 MPH

MERITOR 16.5X7 Q+ CAST SPIDER HEAVY DUTY CAM REAR BRAKES, DOUBLE ANCHOR, FABRICATED SHOES

FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING

ASPHALT SPREADER CLEARANCE REAR BRAKE GEOMETRY

CAST IRON OUTBOARD REAR BRAKE DRUMS

REAR OIL SEALS

BME Fire Trucks, LLC

WABCO TRISTOP D LONGSTROKE 2-DRIVE AXLE SPRING PARKING CHAMBERS

HALDEX AUTOMATIC RAR SLACK ADJUSTERS

CURRENT AVAILABLE SYNTHETIC 75W-90 REAR AXLE LUBE

STANDARD REAR AXLE BREATHER(S)

HENDRICKSON HAULMAAX EX 46,000# REAR SUSPENSION

HENDRICKSON HAULMAAX/ULTIMAAX – 10.50” RIDE HEIGHT

54 INCH AXLE SPACING

HENDRICKSON HN, HAULMAAX AND ULTIMAAX SERIES STEEL BEAMS WITH BAR PIN

HEAVY DUTY FORE/AFT/TRANSVERSE CONTROL RODS

DOUBLE REBOUND STRAP – INBOARD AND OUTBOARD

REAR SHOCK ABSORBERS – TWO AXLES (TANDEM)

NO PUSHER/TAG BRAKE DUST SHIELDS

WABCO 4S/4M ABS WITH TRACTION CONTROL WITH ATC SHUT OFF SWITCH

REINFORCED NYLON, FABRIC BRAID AND WIRE BRAID CHASSIS AIR LINES

FIBER BRAID PARKING BRAKE HOSE

STANDARD BRAKE SYSTEM VALVES

STANDARD AIR SYSTEM PRESSURE PROTECTION AND 85 PSI PRESSURE PROTECTION FOR AIR HORN(S)

STD U.S. FRONT BRAKE VALVE

RELAY VALVE WITH 5-8 PSI CRACK PRESSURE, NO REAR PROPORTIONING VALVE

WABCO SYSTEM SAVER HP WITH INTEGRAL AIR GOVERNOR AND HEATER

AIR DRYER FRAME MOUNTED

STEEL AIR BRAKE RESERVOIRS MOUNTED INSIDE RAIL; CUSTOMER ACCEPTS TANKS MOUNTED IN REAR OVERHANG/REAR SUSPENSION

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PULL CABLE ON WET TANK, PETCOCK DRAIN VALVES ON ALL OTHER AIR TANKS

NO TRAILER AIR HOSE

NO AIR HOSE HANGER

NO TRAILER ELECTRICAL CABLE

5950MM (234 INCH) WHEELBASE

11/32X3-1/2X10-15/16 INCH STEEL FRAME (8.73MMX277.8MM/0.344X10.94 INCH) 120KSI

1/4 INCH (6.35MM) C-CHANNEL INNER FRAME REINFORCEMENT

2200MM (87 INCH) REAR FRAME OVERHANG

FRAME OVERHANG RANGE: 81 INCH TO 90 INCH

24 INCH INTEGRAL FRONT FRAME EXTENSION WITH 0.25 INCH INSERT

CALCULATED BACK OF CAB TO REAR SUSP C/L (CA): 168.7 in

CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA): 165.7 in

CALCULATED FRAME LENGTH – OVERALL: 390.46 in

CALCULATED FRAME SPACE LH SIDE: 60.23 in

CALCULATED FRAME SPACE RH SIDE: 113.58 in

SQUARE END OF FRAME

FRONT CLOSING CROSSMEMBER

STANDARD WEIGHT ENGINE CROSSMEMBER

STANDARD MIDSHIP #1 CROSSMEMBER(S)

STANDARD REARMOST CROSSMEMBER

STANDARD SUSPENSION CROSSMEMBER

BETTS B-25 PAINTED MUDFLAPS BRACKETS

BLACK MUDFLAPS

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BME Fire Trucks, LLC

GRADE 8 THREADED HEX HEADED FRAME FASTENERS

EXTERIOR HARNESES WRAPPED IN ABRASION TAPE

D15-28195-000 CENTER PUNCH TO MARK CENTERLINE OF REAR SUSPENSION ON TOP FLANGE OF FRAME

TANK BODY 1501 TO 3000 GALLONS

80 GALLON/302 LITER RECTANGULAR ALUMINUM FUEL TANK – LH

RECTANGULAR FUEL TANK(S)

POLISHING OF FUEL/HYDRAULIC TANK(S) WITH PAINTED BANDS

FUEL TANK(S) FORWARD

POLISHED STEP FINISH

CHROME FUEL TANK CAP(S)

ALLIANCE FUEL FILTER/WATER SEPARATOR WITH HEATED BOWL AND INDICATOR LIGHT

EQUIFLO INBOARD FUEL SYSTEM

AUXILIARY FUEL SUPPLY AND RETURN PORTS LOCATED ON LH FUEL TANK

HIGH TEMPERATURE REINFORCED NYLON FUEL LINE

MICHELIN XZU-S2 315/80R22.5 20 PLY RADIAL FRONT TIRES

MICHELIN XDN2 12R22.5 16 PLY RADIAL REAR TIRES

CONMET PRESET PLUS PREMIUM IRON FRONT HUBS

CONMET PRESET PLUS PREMIUM IRON REAR HUBS

ALCOA ULTRA ONE 89U64X22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM FRONT WHEELS

ALCOA ULTRA ONE 89U64X22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM REAR WHEELS

POLISHED FRONT WHEELS; OUTSIDE ONLY

POLISHED REAR WHEELS; OUTSIDE OF OUTER WHEELS ONLY

BME Fire Trucks, LLC

FRONT WHEEL MOUNTING NUTS

REAR WHEEL MOUNTING NUTS

114 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB

AIR CAB MOUNTING

CAB ROOF REINFORCEMENTS FOR ROOF MOUNTED COMPONENTS

NONREMOVABLE BUGSCREEN MOUNTED BEHIND GRILLE

FRONT FENDERS SET-BACK AXLE

BOLT-ON MOLDED FLEXIBLE FENDER EXTENSIONS

LH AND RH EXTERIOR GRAB HANDLES WITH SINGLE RUBBER INSERT

BRIGHT FINISH RADIATOR SHELL/HOOD BEZEL

STATIONARY BLACK GRILLE WITH BRIGHT ACCENTS

CHROME HOOD MOUNTED AIR INTAKE GRILLE

FIBERGLASS HOOD WITH ACCESS HATCHES

CAB FLOOR, TOE BOARD AND FIREWALL HEAT SHIELD

VALVE AND PLUMBING FOR CUSTOMER FURNISHED AIR HORN, PIPING CAPPED AT FIREWALL

DUAL ELECTRIC HORNS

HALOGEN COMPOSITE HEADLAMPS WITH BRIGHT BEZELS

LED AERODYNAMIC MARKER LIGHTS

DAYTIME RUNNING LIGHTS

TRUCK-LITE 3 CHAMBER MODULES WITH 45 SERIES SEALED BEAM LAMPS

STANDARD FRONT TURN SIGNAL LAMPS

AUTOMATIC ON/OFF, ENGINE COMPARTMENT, HOOD ACTIVATED WORK LIGHT WITH MANUAL OVERRIDE

BME Fire Trucks, LLC

DUAL WEST COAST MOLDED-IN COLOR HEATED MIRRORS WITH LH AND RH REMOTE
DOOR MOUNTED MIRRORS
102 INCH EQUIPMENT WIDTH
LH AND RH 8 INCH MOLDED-IN COLOR CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS
STANDARD SIDE/REAR REFLECTORS
RH AFTERTREATMENT SYSTEM CAB ACCESS WITH POLISHED DIAMOND PLATE COVER
63X14 INCH TINTED REAR WINDOW
TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS
RH AND LH ELECTRIC POWERED WINDOWS
1-PIECE SOLAR GREEN GLASS WINDSHIELD
8 LITER (2 GAL) WINDSHIELD WASHER RESERVOIR, CAB MOUNTED, WITH FLUID LEVEL INDICATOR
RUGGED TRIM PACKAGE
GRAY & CARBON VINYL INTERIOR "RUGGED"
CARBON WITH PREMIUM GUNMETAL ACCENT (RUGGED)
MOLDED PLASTIC DOOR PANELS
BLACK MATS WITH SINGLE INSULATION
ASH CUP AND (1) LIGHTER, (1) 12V POWER OUTLET
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

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STANDARD HVAC DUCTING WITH PRE-FILTER FOR OUTSIDE AIR INTAKE

MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH

STANDARD HEATER PLUMBING

VALEO HEAVY DUTY A/C REFRIGERANT COMPRESSOR

BINARY CONTROL, R-134A

PREMIUM INSULATION

SOLID-STATE CIRCUIT PROTECTION AND FUSES

12V NEGATIVE GROUND ELECTRICAL SYSTEM

STANDARD LED CAB LIGHTING

NO SECURITY DEVICE

DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME

KEY QUANTITY OF 4

LH AND RH ELECTRIC DOOR LOCKS

BASIC ISRINGHAUSEN HIGH BACK AIR SUSPENSION DRIVERS SEAT WITH MECHANICAL LUMBAR AND INTEGRATED CUSHION EXTENSION

BASIC ISRINGHAUSEN HIGH BACK AIR SUSPENSION PASSENGER SEAT WITH MECHANICAL LUMBAR AND INTEGRATED CUSHION EXTENSION

DUAL DRIVER SEAT ARMRESTS, NO PASSENGER SEAT ARMRESTS

LH AND RH INTEGRAL DOOR PANEL ARMRESTS

BLACK VINYL DRIVER SEAT COVER

BLACK VINYL PASSENGER SEAT COVER

HIGH VISIBILITY ORANGE SEAT BELTS WITH DRIVER INDICATOR LIGHT AND AUDIBLE ALARM

ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN

4-SPOKE 18 INCH (450MM) BLACK STEERING WHEEL WITH SWITCHES

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DRIVER AND PASSENGER INTERIOR SUN VISORS

ELECTRONIC ACCELERATOR CONTROL

NO INSTRUMENT PANEL-DRIVER

CONFIGURABLE LOWER PANEL WITH INTEGRATED UPPER STORAGE

ENGINE REMOTE INTERFACE WITHOUT INTERLOCKS

BLACK GAUGE BEZELS

LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM WITH (1) ADDITIONAL PARK SWITCH FOR CUSTOMER USE

(1) PNEUMATIC SINGLE BRAKE APPLICATION AIR GAUGE

DUAL NEEDLE PRIMARY AND SECONDARY AIR PRESSURE GAUGE

DASH MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS

97 DB BACKUP ALARM

ELECTRONIC CRUISE CONTROL WITH CONTROLS ON STEERING WHEEL SPOKES

KEY OPERATED IGNITION SWITCH AND INTEGRAL START POSITION; 4 POSITION OFF/RUN/START/ACCESSORY

PREMIUM INSTRUMENT CLUSTER WITH 5.0 INCH TFT COLOR DISPLAY

DIGITAL PANEL LAMP DIMMER SWITCH IN DRIVER DISPLAY

HEAVY DUTY ONBOARD DIAGNOSTICS INTERFACE CONNECTOR LOCATED BELOW LH DASH

2 INCH ELECTRIC FUEL GAUGE

ENGINE REMOTE INTERFACE WITH ONE OR MORE SET SPEEDS

QUICKFIT POWERTRAIN INTERFACE CONNECTOR UNDER CAB WITH BLUNTCUTS

QUICKFIT PROGRAMMABLE INTERFACE CONNECTOR(S) BETWEEN SEATS WITH BLUNTCUTS

ENGINE REMOTE INTERFACE CONNECTOR AT POWERTRAIN INTERFACE CONNECTOR

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ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE

DIGITAL ENGINE OIL TEMPERATURE IN DRIVER DISPLAY

ELECTRIC ENGINE OIL PRESSURE GAUGE

DIGITAL TRANSMISSION OIL TEMPERATURE IN DRIVER DISPLAY

ELECTRONIC OUTSIDE TEMPERATURE SENSOR DISPLAY IN DRIVER MESSAGE CENTER

ELECTRONIC OUTSIDE TEMPERATURE SENSOR DISPLAY IN DRIVER MESSAGE CENTER

ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY

PTO CONTROLS FOR ENHANCED VEHICLE ELECTRIC/ELECTRONIC ARCHITECTURE

NO OBSTACLE DETECTION SYSTEM

NO DR ASSIST SYSTEM

NO VEHICLE STABILITY ADVISOR OR CONTROL

NO LANE DEPARTURE WARNING SYSTEM

NO REVERSE PROXIMITY SENSOR

NO OVERHEAD INSTRUMENT PANEL

1 QUICKFIT PROGRAMMABLE MODULE (QPM/XMC) W/ (4) 20AMP FUSED RELAYS

AM/FM/WB WORLD TUNER RADIO WITH BLUETOOTH, USB AND AUXILIARY INPUTS, J1939

DASH MOUNTED RADIO

(2) RADIO SPEAKERS IN CAB

AM/FM ANTENNA MOUNTED ON FORWARD LH ROOF

NO CB RADIO MOUNTING PROVISION

STANDARD RADIO WIRING WITH STEERING WHEEL CONTROLS

ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE, WITHOUT ODOMETER

STANDARD VEHICLE SPEED SENSOR

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ELECTRONIC 3000 RPM TACHOMETER

DETROIT CONNECT PLATFORM HARDWARE

3 YEARS DAIMLER CONNECTIVITY BASE PACKAGE ON (FEATURES VARY BY MODEL) POWERED BY DETROIT CONNECT ON CUMMINS ENGINES

(2) TMC RP1226 ACCESSORY CONNECTORS: (1) LOCATED BEHIND PASSENGER SIDE REMOVABLE DASH PANEL (1) CENTER OF OVERHEAD CONSOLE

IGNITION SWITCH CONTROLLED ENGINE STOP

FOUR EXTRA HARDWIRED SWITCHES IN DASH, ROUTE TO BETWEEN SEATS, BLUNTCUT

HARDWIRE SWITCH #1, ON/OFF LATCHING, 30 AMPS BATTERY POWER

HARDWIRE SWITCH #2, ON/OFF LATCHING, 30 AMPS IGNITION POWER

HARDWIRE SWITCH #3, ON/OFF LATCHING, 20 AMPS IGNITION POWER

HARDWIRE SWITCH #4, ON/OFF LATCHING, 20 AMPS MOMENTARY POWER

PRE-TRIP INSPECTION FEATURE FOR EXTERIOR LAMPS AND SERVICE BRAKES

(2) LH AND RH FOOT SWITCHES WITH DASH SWITCH FOR HORN BUTTON TO CONTROL AIRHORN, DEFAULT TO ELECTRIC <85 PSI

NO TRAILER HAND CONTROL BRAKE VALVE

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

ALTERNATING FLASHING HEADLAMP SYSTEM WITH BODY BUILDER CONTROLLED ENGAGEMENT

ONE VALVE PARKING BRAKE SYSTEM WITH 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

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TWO COLOR CUSTOM PAINT – FTL-EMERGENCY 1

CAB COLOR A: L5074EY WHITE PIERCE #20

CAB COLOR B: CUSTOM

CAB COLOR B: PIERCE 117 RED

BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT

STANDARD E COAT/UNDERCOATING

CAB SEATING AND WEIGHT ALLOWANCE

A warning label shall be installed in the cab to indicate seating positions.

LABELS, STANDARD PACKAGE SET

A standard set of labels shall be provided and installed on the inside of chassis cab area. The labels shall contain the required information based on the applicable components for the apparatus.

DATA PLAQUE

A data plaque shall be provided and installed on the inside of the cab. The data plaque shall contain the required information based on the applicable components for the apparatus:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Drive axle lubricant
- Power steering fluid
- Pump, generator, or other component lubrications
- Other NFPA applicable fluid levels or data as required
- Paint manufacturer, type, and color number
- Tire Speed Ratings

DATA PLAQUE

A data plaque shall be provided and installed. The plaque shall contain the following information.

- Pump make and model
- GPM capacity rating

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- Truck serial and production number
- Pump performance (specific GPMs at rated pressures with engine RPM)
- Governed engine RPM
- Pump gear ratio

WARNING LABEL -- NO RIDING ON REAR

A warning label stating: "WARNING: DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT" shall be installed on the rear of the apparatus. The label shall be applied to the vehicle at the rear step area. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion, is prohibited.

WARNING LABEL -- OCCUPANT SEATED AND BELTED

A warning label for occupants seated to be belted shall be mounted in a location visible to all occupants of the cab. The label shall meet FAMA07 standards.

Label shall read "Crash hazard occupants must be seated and belted when vehicle is in motion. Use only OEM approved belts. Unbelted occupants are at greater risk of injury or death in a crash."

WARNING LABEL -- SIREN NOISE

A warning label for siren noise {will/shall} be located inside driver cab door. The label shall comply with FAMA42 standards.

Label shall read, "Sirens produce loud sounds that may damage hearing. Roll up windows. Wear hearing protection. Use only for emergency response. Avoid exposure to siren sound outside of vehicle."

WARNING LABEL -- HELMET WORN IN CAB

A warning label for wearing helmet in cab shall be located visible from each seating location. The label shall comply with FAMA43 standards.

The label shall read, "Cash Hazard. Do not wear helmet while seated unless necessary during suppression operations. Serious head or neck injury may result from helmet use in cab. Failure to comply may injure or kill."

AIR FILTER EMBER PROTECTION SCREEN WARNING LABEL

A warning label, stating: "THIS VEHICLE HAS AN AIR INTAKE EMBER SCREEN WHICH REQUIRES PERIODIC INSPECTION & CLEANING" shall be provided and installed in the apparatus cab interior.

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FRESH AIR EMBER SEPARATOR WARNING LABEL

A warning label, stating: “THIS APPARATUS IS EQUIPPED WITH A CAB FRESH AIR INTAKE EMBER PROTECTION SCREEN. ROUTINE INSPECTION IS REQUIRED.” shall be provided and installed in the apparatus cab interior.

MANUFACTURER LOGO

The apparatus shall include a BME logo plaque which shall be affixed at the rear of the apparatus.

The BME plaque shall feature white reflective material on the outside of the Maltese cross and red reflective material in the middle.

FRONT TOWING PROVISIONS

Two (2) front towing provisions shall be installed by the chassis manufacturer.

REAR TOW EYES

Two (2) bolt-on tow eyes shall be installed at the rear of the chassis. The tow eyes shall be painted or powder coated gloss black.

AIR HORN

One (1) Buell brand, Model #1063 15" air horn shall be provided and mounted on the frame rail of the passenger's side frame, behind the bumper.

AIR HORN FOOT SWITCH

One (1) foot switch shall be provided and installed. The foot switch shall be located on the driver's side of the floor and shall activate the air horn system.

EXHAUST SYSTEM MODIFICATION

The chassis exhaust system shall be modified to exit on the passenger side of the apparatus ahead of the rear wheel.

REAR MUD FLAPS

The chassis shall be supplied with mud flaps with BME's logo. The mud flaps shall be installed behind the rear wheels.

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CAB DOOR REFLECTIVE PANELS

The cab doors shall include reflective white trim installed inside each door.

Specified part shall include Red and White DOT approved reflective striping.

FRONT AIR RIDE SEATS

CAB SEATING

The apparatus shall be equipped with two (2) Bostrom Sierra 100 air ride seats. The seats shall have an inside arm rest.

The specified seat(s) covers shall be dark grey vinyl.

UNDERHOOD LIGHTS

There shall be two (2) Tecniq LED light(s) installed under the hood of the chassis. Lights shall have local switching on the driver side under the hood.

AIR FILTER EMBER PROTECTION SCREEN AND WARNING LABEL

The chassis air intake shall be protected by an ember guard of 18 Mesh, 0.017-inch wire diameter, and a maximum mesh opening of 0.039 inches. The ember guard shall be sized to fit and located at the intake opening. The screen shall be readily accessible for inspection and maintenance.

EMBER SEPARATOR -- FRESH AIR INTAKE TO CAB

The cabin air filter shall be protected by an ember guard with a maximum mesh opening of 0.039 inches.

OEM TINTED CAB WINDOWS

The cab windows shall remain as tinted by the OEM chassis manufacturer for UV resistance only, no aftermarket tinting shall be done.

TIRE PRESSURE INDICATOR SYSTEM

There shall be a tire pressure indicator at each road tire's valve stem on the vehicle. The indicators shall provide LED indication if there is insufficient pressure in the specific tire.

FIRE PUMP SPECIFICATIONS

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A Waterous model CSUC22, 1500 GPM single stage centrifugal pump shall be designed to mount on the chassis frame rails and shall be split-drive shaft driven. The pump casing shall be of high-tensile, close-grained gray iron. Pump body shall be horizontally split in two (2) sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing the mounting or piping.

A matched bronze impeller specifically designed for the fire service will be provided. It shall be accurately balanced both mechanically and hydraulically, for vibration-free operation. Stainless steel heat-treated and precisely ground to size. It shall be supported on both ends by oil or grease lubricated ball bearings.

Replaceable wear rings, bronze, reverse-flow, labyrinth-type shall be provided. Three (3) deep groove ball bearings shall be located outside the pump to give rugged support and proper alignment to the impeller shaft. The bearings shall be oil or grease lubricated. All bearings shall be completely separated from the water being pumped. Located on the impeller shaft between stuffing boxes and bearing housing shall be provided.

The housing shall be constructed of high tensile aluminum and be of three (3) piece, horizontally split design. The transmission driveline shafts shall be made from alloy steel forged, hardened and ground to size. The drive and driven sprockets shall be made of steel and shall be carbonized and hardened. The drive chain shall be Morse HV in volute form chain. The lubrication system shall be impeller shaft driven oil pumps to deliver oil to an integral spray header, to completely pressure lubricate the drive chain.

A pump bearing grease fitting shall be provided in the pump enclosure. Fitting shall have a protective dust cap and shall be properly labeled. The pump shall be bolted to steel angles in pump module, using grade 8 bolts.

FIRE PUMP WARRANTY

A seven (7) year warranty on the Waterous fire pump shall be provided. The provisions of this warranty shall be described in the completed apparatus documentation.

PRIMING SYSTEM

A Waterous model #VPOS electrically driven, positive displacement, rotary vane type 'oil less' priming pump shall be installed. The pump shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. It shall be capable of developing a vacuum of 22" at an altitude of up to 1000 feet. The system shall be activated with a push button switch.

PRIMING VALVE

A Waterous model #82507-2T VAP priming valve shall be installed on the apparatus.

FIRE PUMP SHIFT

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The fire pump shall be equipped with an air operated pump shift, pneumatically controlled using a power-shifting cylinder. The Waterous air shift control valve shall be mounted in the cab. 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 have required indicator and interlock systems shall be installed as required by the pump manufacturer and applicable NFPA standards.

The system shall include all required interlocks and pump shift and OK TO PUMP indicator lights in the cab and pump panel. The fire pump system shall be equipped with an interlock system shall be provided 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. The secondary braking device shall be automatically disengaged for pumping operations.

THIRD PARTY FIRE PUMP TEST

The pump shall undergo an Underwriters Laboratories Incorporated witnessed and certified test per applicable sections of NFPA 1900 standards, prior to delivery of the completed apparatus. The UL acceptance certificate shall be furnished with the apparatus on delivery. No exceptions to UL testing, no other third party agency shall be acceptable.

FIRE PUMP DRIVE LINE INSTALLATION

The mid-ship fire pump shall be installed with constant heavy duty #1810 drive shafts with vibration free angles to the rear axle.

INTAKE DUMP VALVE

An Waterous brand intake dump valve shall be provided and mounted on the suction side of the pump. The discharge piping of the dump valve shall be a minimum of 2-1/2" diameter and shall terminate with a 2-1/2" male NST adapter. The excess water shall be discharged to the ground. A label shall be provided indicating: "DUMP VALVE DISCHARGE, DO NOT CAP".

BYPASS FIRE PUMP COOLER

The fire pump shall be equipped with a cooling line, the line shall be routed through the main and auxiliary pump (if applicable) to an adjustable valve, from the valve the water shall be routed through the apparatus' engine cooling system and then to the water tank. The valve on the pump panel shall be labeled "Engine Cooler".

PLUMBING- GENERAL

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The plumbing system shall utilize stainless steel piping incorporating hosing to allow for flex. The piping shall utilize TIG welding to provide a complete seal. Hard angles shall be avoided when possible to improve water flow characteristics. The piping shall utilize Victaulic couplers whenever possible to allow flex as the body module flexes.

Threaded sections of piping shall be avoided to reduce the leak potential of the system. Victaulic couplers shall be used in place of threading to reduce leak potential. Schedule 10 stainless steel piping shall be used for transport type piping. Schedule 40 stainless steel shall be used for areas requiring threading to provide a stable threading base. Brackets shall be installed to support threading locations thereby reducing the potential for leaks.

All hoses shall be connected directly to the tank due to the different flex ratios of the tank to body. Any front discharges, any rear discharges, and all cross lays shall use hose to reach the actual discharge. The use of hose shall be utilized due to the difference in flex or movement between the discharge location and the pump connection. Drain lines shall be provided at the lowest points in the plumbing system to allow for complete drainage. Bleeders shall be provided for all gauges to relieve pressure after use. Push/ pull handles shall be provided for all bleeders and the primer control.

6" UNGATED INTAKE -- LEFT SIDE

One (1) 6" un-gated suction intake shall be installed on the left side pump panel to supply the fire pump from an external water supply. The threads shall be 6" NH male and equipped with a removable screen.

One (1) chrome brass 6" NH long handle cap shall be installed on the intake.

6" UNGATED INTAKE -- RIGHT SIDE

One (1) 6" un-gated suction intake shall be installed on the right side pump panel to supply the fire pump from an external water supply. The threads shall be 6" NH male and equipped with a removable screen.

One (1) chrome brass 6" NH long handle cap shall be installed on the intake.

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

One (1) 2-1/2" gated suction intake shall be recessed mounted on the left side pump panel to supply the fire pump from an external water supply. The valve shall be a quarter-turn ball valve with the appropriate handle and shall have 2-1/2" NH female thread.

The intake shall be equipped with a South Park Corp. 3/4" Push-pull type drain valve mounted to the bottom of the valve.

One (1) Akron 8825 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed

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to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

The specified valve shall have a direct actuated 'local' control Akron Model TSC valve handle.

One (1) chrome brass 2-1/2" NH rocker lug plug with a securing chain or cable shall be installed on the intake.

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

One (1) 2-1/2" gated suction intake shall be recess mounted on the right side pump panel to supply the fire pump from an external water supply. The valve shall be a quarter-turn ball valve with the appropriate handle and shall have 2-1/2" NH female thread.

The intake shall be equipped with a South Park Corp. 3/4" Push-pull type drain valve mounted to the bottom of the valve.

One (1) Akron 8825 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

The specified valve shall have a direct actuated 'local' control Akron Model TSC valve handle.

One (1) chrome brass 2-1/2" NH rocker lug plug with a securing chain or cable shall be installed on the intake.

WATER TANK SUPPLY LINE TO FIRE PUMP

One (1) 4" water tank to pump line shall be installed with a 4" full flow quarter turn ball valve and 4" piping. The line shall be equipped with a hump hose with stainless steel hose clamps and a 4" full flow check valve to prevent pressurization of the water tank.

One (1) Akron 8840 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement. The valve shall be operated by an electric actuator.

The specified electric valve shall be controlled with a Navigator Pro 2.0 9333 controller.

PUMP TO TANK

One (1) 2" pump to tank line shall be installed with a 2" full flow quarter turn ball valve and 2" piping.

One (1) Akron 8820 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed

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to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

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

(2) 2-1/2" discharge shall be installed on the left side rearward pump panel area with controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NH male hose threads and label adjacent the control handle.

The discharge outlet shall be equipped with an Innovative Controls 3/4" bleeder assembly with side stem lever control.

Two (2) Akron 8825 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

The specified valve shall have a direct actuated 'local' control Akron Model TSC valve handle.

(2) chrome plated brass 30 degree elbow with 2.5" swivel female NH x 2.5" male NH thread with rocker lugs shall be provided on the discharge.

Two (2) chrome brass 2.5" NH rocker lug cap with a securing chain or cable shall be installed on the discharge.

The line discharge water pressure gauge(s) shall be Innovative Controls model# 3010353-40003. The gauges shall have a 2" diameter face with a graduated output scale of 0-600 PSI. The gauge shall be mounted within 6" of the control device with a name plate label.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

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Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

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

One (1) 2-1/2" discharge shall be installed on the right side forward pump panel area with controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NH male hose threads and label adjacent the control handle.

The discharge outlet shall be equipped with an Innovative Controls 3/4" bleeder assembly with side stem lever control.

One (1) Akron 8825 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

(1) 2-1/2" IC discharge pressure gauges (0-600 PSI) shall be provided. The face of the gauge shall be a white dial with black letters. The gauges will be located on the pump instrument panel.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

(1) chrome plated brass 30 degree elbow with 2.5" swivel female NH x 2.5" male NH thread with rocker lugs shall be provided on the discharge.

One (1) chrome brass 2.5" NH rocker lug cap with a securing chain or cable shall be installed on the discharge.

4" DISCHARGE RIGHT SIDE -- FORWARD PUMP PANEL

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One (1) 4" discharge shall be installed on the right side forward pump panel area with controlled by a slow close 4" quarter turn ball valve. The discharge shall have 4" NH male hose threads and label adjacent the control handle.

The discharge outlet shall be equipped with an Innovative Controls 3/4" bleeder assembly with side stem lever control.

One (1) Akron 8840 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement. The valve shall be operated by an electric actuator.

The specified electric valve shall be controlled with a Navigator Pro 2.0 9333 controller.

One (1) chrome plated brass 30 degree elbow with 4" swivel female NH x 4" male NH thread with rocker lugs shall be provided on the discharge.

One (1) chrome plated brass 4" NH rocker lug cap with a securing chain or cable shall be installed on the discharge.

The line discharge water pressure gauge(s) shall be Innovative Controls model# 3010353-40003. The gauges shall have a 2" diameter face with a graduated output scale of 0-600 PSI. The gauge shall be mounted within 6" of the control device with a name plate label.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

2.5" DISCHARGE -- REAR RIGHT

One (1) 2.5" discharge shall be installed on the rear right panel with controlled by a quarter turn ball valve. The discharge shall have 2.5" NH male hose threads and nameplate label adjacent the control handle.

The discharge outlet shall be equipped with an Innovative Controls 3/4" bleeder assembly with side stem lever control.

One (1) Akron 8825 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed

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to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

(1) 2-1/2" IC discharge pressure gauges (0-600 PSI) shall be provided. The face of the gauge shall be a white dial with black letters. The gauges will be located on the pump instrument panel.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

(1) chrome plated brass 30 degree elbow with 2.5" swivel female NH x 2.5" male NH thread with rocker lugs shall be provided on the discharge.

One (1) chrome brass 2.5" NH rocker lug cap with a securing chain or cable shall be installed on the discharge.

1-1/2" CROSSLAY DISCHARGE

There shall be two (2) pre-connect 1-1/2" hose cross lays installed over pump enclosure. The outlets shall be equipped with a 1-1/2" NPT female chickens swivel x 1-1/2" male NH hose threads. The hose bed decking shall be constructed with a removable slatted material. The bed shall be approximately 8" wide, 14" deep, and 72" right to left over the pump enclosure area. The hose beds shall provide a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with nozzle provided by fire department.

Two (2) Akron 8820 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement.

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For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips, and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

(2) 2-1/2" IC discharge pressure gauges (0-600 PSI) shall be provided. The face of the gauge shall be a white dial with black letters. The gauges will be located on the pump instrument panel.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

The crosslay hosebed shall be equipped with an aluminum diamond plate hinged cover and vinyl end flap enclosures on each side, installed in compliance with applicable NFPA #1900 standards. The cover shall be equipped with rubber bumpers and lift up handle on each end of the cover.

The specified crosslay/deadlay flaps shall be red.

CROSSLAY EDGES

The crosslay side sheets shall be rolled on each side to act as a guide for the hose to come out of the tray.

The specified outlet(s) shall be equipped with a 1-1/2" NPT female chickens swivel x 1-1/2" male NH hose threads.

Front Bumper Discharge Options

MONITOR DISCHARGE

One (1) 3" monitor discharge shall be installed over the pump enclosure. The discharge shall be controlled by a slow close 3" quarter turn ball valve. The discharge shall terminated with 3" hose threads or Victaulic coupling.

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The discharge outlet shall be equipped with an Innovative Controls 3/4" bleeder assembly with side stem lever control.

One (1) Akron 8630 series swing-out style valve(s) shall be supplied and installed. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments. All valves and controls shall be easily accessible for service, repair or replacement. The valve shall be operated by an electric actuator.

The specified electric valve shall be controlled with a Navigator Pro 2.0 9333 controller.

NO- Deck gun is included with this discharge.

The line discharge water pressure gauge(s) shall be Innovative Controls model# 3010353-40003. The gauges shall have a 2" diameter face with a graduated output scale of 0-600 PSI. The gauge shall be mounted within 6" of the control device with a name plate label.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

FOAM SYSTEM

A FoamPro #2001 electronic foam system shall be provided. The system shall be designed for use with Class A foam concentrate. The foam proportioning operation shall be designed for direct measurement of water flows and shall remain consistent within the specified flows and pressures. The system shall be capable of accurately delivering foam solution as required by applicable sections of the NFPA standards.

The system shall be equipped with a control module suitable for installation on the pump panel. There shall be a microprocessor incorporated within the motor driver that shall receive input from the system's flow meter, while also monitoring the foam concentrate pump output. The microprocessor shall compare the values to ensure that the desired amount of foam concentrate is injected onto the discharge side of the fire pump. A "foam capable" paddlewheel-type flow meter shall be installed in the discharge side of the piping system.

The control module shall enable the pump operator to:

1. Activate the foam proportioning system
2. Select the proportioning rates from 0.1% to 3.0%

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3. Display a "Lo Con" warning when the foam tank level becomes low and in two (2) minutes, if the foam concentrate has not been added to the tank, the foam concentrate pump shall be capable of shutting down.
4. Display the current flow rate of water or foam solution per minute.
5. Display the total amount of water or foam pumped (resetable).
6. Display the foam concentrate injection rate setting.

A 12 volt electric motor driven positive displacement plunger pump shall be provided. The pump capacity range shall be 0.1 to 2.6 GPM at 150 PSI with a maximum operating pressure up to 400 PSI. The system shall draw a maximum of 40 amps at 12 volts. The motor shall be controlled by the microprocessor which shall be mounted to the base of the pump. It shall receive signals from the control module and power the 1/2 horsepower electric motor in a variable speed duty cycle to ensure that the correct proportion of concentrate is injected into the water stream.

A full flow check valve shall be provided in the discharge piping to prevent foam contamination of the fire pump and water tank. A minimum 11 PSI opening pressure check valve shall be provided in concentrate line.

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

1. Operator control module
2. Paddlewheel flow meter
3. Pump and electric motor/motor driver
4. Wiring harnesses
5. Low level tank switch
6. Foam injection check valve
7. Main waterway check valve
8. Flow meter with paddle wheel

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

The foam system design shall be tested and pass environmental testing in accordance to SAE standards.

An installation and operation manual shall be provided for the unit.

The FoamPro 2001 Series foam system shall be provided with a FoamPro control cable from the controller to the foam pump assembly. The FoamPro 2001 Series foam system shall be provided with a standard pump panel mounted FoamPro control head.

The flow meter shall be installed in the "foam capable" discharge piping.

The foam system shall have a pump operator's panel-mounted digital control module that shall provide a constant readout of GPM of water, foam solution, concentrate rate and totals of quantities being discharged at

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any time during operation. The total readable figure shall be 99,999 gallons. The foam system shall be capable of being calibrated from the pump operator's panel. Diagnostic testing shall be provided in the readout from the instruments on the pump operator's panel.

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

Foam concentrate shall be provided from the onboard foam concentrate storage tank. The system shall be compatible with nozzle aspirating systems, where nozzle flow volumes must be adjustable on demand, while maintaining a constant quality foam solution.

FOAM SYSTEM OUTLETS

The following discharges shall have foam distributed to them.

- Front bumper discharges (If applicable)
- Front bumper monitor (If applicable)
- Booster hose reel (If applicable)
- 1-1/2" Cross lays
- Rear 2-1/2" discharge
- Right side 2-1/2" discharge
- 3" Top Monitor (If applicable)

A 3/4" PVC fitting shall be provided on the foam tank for connection of the foam tank to the suction side of the foam system.

PUMP ENCLOSURE

The mid-ship fire pump enclosure shall be a separate unit from the body unit and shall be attached and supported at the chassis frame rails. This module shall allow independent flexing of the pump enclosure from the body, chassis, tank, and shall permit quick removal. The module shall have plastic or rubber mounting pads and shall be attached to the frame rails with spring mountings. The support structure shall be constructed of #6061 aluminum channel, tubing and angle.

The "module" enclosure shall allow for removal of valves, piping, and fire pump in a single unit, with a minimum number of components to be disassembled. The right and left side panels, front panel, and floor above the plumbing system shall be bolted and easily removable.

The pump enclosure shall be approximately 50" front to rear, 72" right to left, and 70" high with a left side mounted pump panel.

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PUMP ENCLOSURE RUNNING BOARD

Both the drivers and passenger side shall be equipped with a side running board. The running board shall extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab. The exterior edge of the running board shall be constructed of a non-slip aggressive surface, supported by the pump enclosure framework, and bolted in place with stainless steel fasteners.

PUMP ACCESS SERVICE DOOR -- UPPER LEFT SIDE

The upper left side of the side mount pump enclosure shall be provided with a pump service access door. The hinged door shall be constructed of stainless steel with a brushed finish.

DOOR LATCH

The specified hinged door(s) shall be equipped with (2), textured chrome lever latch(es). Latch(es) shall be non-locking style with a raised button.

PUMP ACCESS SERVICE DOOR -- UPPER RIGHT SIDE

The upper right side of the side mount pump enclosure shall be provided with a pump service access door. The hinged door shall be constructed of stainless steel with a brushed finish.

DOOR LATCH

The specified hinged door(s) shall be equipped with (2), textured chrome lever latch(es). Latch(es) shall be non-locking style with a raised button.

PUMP PANEL-LEFT SIDE

The pump panel shall be constructed of stainless steel, and bolted to the pump enclosure with stainless steel fasteners. Discharges and intakes shall feature a bezel to aid in removal of panel for maintenance and repairs.

PUMP PANEL-RIGHT SIDE

The pump panel shall be constructed of stainless steel, and bolted to the pump enclosure with stainless steel fasteners. Discharges and intakes shall feature a bezel to aid in removal of panel for maintenance and repairs.

MASTER PRESSURE CENTER - GAUGE SET

One (1) master pressure gauge set (discharge pressure and intake gauge), with labels shall be provided on the pump instrument panel. The set shall be an Innovative Controls Master Pressure Center and shall incorporate one (1) 4" master intake pressure gauge, one (1) 4" master discharge pressure gauge, an audible alarm, and one

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(1) set of vacuum/pressure test taps into an integrated, bezeled platform.

The specified gauge shall feature a drain located at the gauge inlet to help prevent freezing. The drain shall be a twist open and close type.

Gauge(s) shall include internal, back-lit 12 volt lighting. Replaceable, White, LED bulb in a water-resistant holder.

Gauge(s) shall be supplied with a white dial face with black lettering and black gauge marks.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss Max series PBA504-C10 pressure governor and control module kit shall be installed. The kit shall include a control module, discharge pressure sensor, and cables. The control module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. 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 2" from the front of the control module. The control LCD shall be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus. Outputs for engine control shall be on the J1939 data bus. Inputs from the pump discharge pressure sensor shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown on LCD screen
- Check engine and stop engine warning; shown on LCD screen
- Engine oil pressure; shown on LCD screen
- Engine coolant temperature; shown on LCD screen
- Transmission Temperature; shown on LCD screen
- Battery voltage; shown on LCD screen
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on LCD screen
- Throttle ready / Ok to Pump LEDs.

On screen (LCD) 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. LCD Screen and LED's 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

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Out of Water (visual alarm only)

No Engine Response (visual alarm only).

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

The pressure 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 and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure 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 pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor control module shall be programmed at installation for a specific engine.

WATER TANK GAUGE

IC Soft-Glo Tank Level Monitor System Innovative Controls Soft-Glo Series Tank Level Monitors shall be installed. The system shall be CAN Bus capable and include a variety of electronic display modules and CAN extension cables. The display modules are divided into 4 distinct sections that show the volume of (Water or Class A Foam or Class B Foam) in the tank using multi-color and programmable superbright LEDs. Tank level indication is enhanced by the use 180° wide-angle diffusion lenses in front of the LEDs. The LEDs are diffused by a proprietary method that creates an illumination effect that remains bright but eliminates the typical irritation to an operator's eyes traditionally caused by bright LEDs.

The specified tank level gauge shall feature a blue bezel.

The specified level gauge shall be active anytime the chassis battery switch is turned on.

FOAM TANK GAUGE

IC Soft-Glo Tank Level Monitor System Innovative Controls Soft-Glo Series Tank Level Monitors shall be installed. The system shall be CAN Bus capable and include a variety of electronic display modules and CAN extension cables. The display modules are divided into 4 distinct sections that show the volume of (Water or Class A Foam or Class B Foam) in the tank using multi-color and programmable superbright LEDs. Tank level indication is enhanced by the use 180° wide-angle diffusion lenses in front of the LEDs. The LEDs are diffused by a proprietary method that creates an illumination effect that remains bright but eliminates the typical irritation to an operator's eyes traditionally caused by bright LEDs.

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The specified tank level gauge shall feature a green bezel.

The specified level gauge shall be active anytime the chassis battery switch is turned on.

NOMENCLATURE PLATES

The apparatus shall be equipped with color coded labels. The labels shall be furnished for discharges, intakes, and for other controls and indicators. All labels shall be in English format.

MIDSHIP PUMP PANEL LIGHTS -- DRIVERS SIDE

There shall be three Tecniq brand LED lights installed under a stainless steel light shield mounted above the pump panel. The two outer lights shall be operated by a panel mounted switch, while the middle light will only be activated upon pump engagement.

One (1) of the pump panel lights shall illuminate at the time the fire pump is engaged.

MIDSHIP PUMP PANEL LIGHTS -- PASSENGER SIDE

There shall be three Tecniq brand LED lights installed under a stainless steel light shield mounted above the pump panel. The two outer lights shall be operated by a panel mounted switch, while the middle light will only be activated upon pump engagement.

One (1) of the pump panel lights shall illuminate at the time the fire pump is engaged.

DESIGN AND SCOPE OF TANKER/TENDER BODY

The body shall be designed and constructed of commonly available structural components for ease of repair and maintenance. The body shall be of a modular design with the body structure independent of the chassis frame rails. The body module shall be mounted to the chassis frame rails utilizing a unique double spring mounting system for flexibility and durability over the lifetime of the apparatus. The fabrication of the body shall be of welded construction to withstand the rigors of fire service use.

The body shall be designed to incorporate and support the tank, hose bed, compartments, and all other equipment intended to be stored in or mounted to the body module. The body skeleton and compartment framework shall be designed of tubular members for increased strength and stress resistance. There shall be no sheet metal or extrusions utilized in the foundation or structural components of the body module due to their critical role in assuring lifetime durability, functionality and usability.

BODY FRAMEWORK

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The entire body framework shall be fabricated of 6061-T6 aluminum architectural style tubing. The body framework shall be a completely welded unit, forming a connected, stable frame for strength, longevity and providing the skeleton of the body module. The internal upright members of the framework shall act as support for the top layer of the body module. The external upright members shall act as an exoskeleton providing form and support for compartments while acting as the external surfaces of the module. The framework shall define the compartment openings and provide a rigid mounting location for all compartments and doors.

The foundation cross-members shall be placed perpendicular to the chassis frame rails in the wheel well area extending the full width of the body and shall be constructed of 3 inch high x 2 inch wide x .250 inch tubing. The foundation members parallel to the chassis frame rails shall be constructed of 3 inch square x .250 inch tubing and shall connect the foundation cross members and extend the full length of the body.

All tank support cross members shall be placed to support the water tank as per the tank manufacture's recommendation. These supports shall be constructed of 3 inch high x 2 inch wide x .250 inch aluminum tubing. The tank support angles shall be constructed of 4 inch x 4 inch x .250 inch thick angles and shall be placed at the tank sides parallel to the chassis frame rails to provide lateral support for the tank and protection from debris from the wheels.

The internal upright supports for top layer components shall be placed to provide support for all components located on the top layer of the body module and shall be constructed of aluminum tubing measuring 2 inch square x .250 inch wall thickness. All front to rear connecting members shall be 3 inches high x 2 inches wide x .125 inch wall thickness and shall be placed in between the interior upright support members to provide rigidity, stability and support to all top layer components. All gussets shall be constructed of 2 inches high x 3 inches wide x .250 inch thick plate which shall be placed on the top and bottom of the foundation cross members where they intersect with the exterior members.

BODY MOUNTING SYSTEM

The mounting assembly shall be designed to isolate and protect the body module from vibration and twisting stresses imparted by the flexing of the chassis frame rails. The body module shall employ spring loaded body mounting assemblies. Each two piece mounting assembly shall be designed to positively position the body on the frame rails while allowing lateral and forward or aft movement. Mounting assemblies shall be placed forward and rearward of the rear axle as necessary to provide a strong and stable mounting of the body module. Each mounting assembly shall consist of a "male" upper mounting bracket and a "female" lower mounting bracket.

BODY MATERIAL

All materials utilized shall be of the correct type, alloy, and thickness to withstand the intended usage and provide protection against cracking, corrosion or metal fatigue. The body compartments shall be fabricated using .125 inch 5052-H32 aluminum for most compartments unless otherwise stated. Any use of proprietary parts or materials in the construction of the body shall be unacceptable, due to potential delays or difficulties in

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an unlikely event of future repairs or when service becomes necessary.

All external upright supports for integral compartments shall incorporate a second set of upright supports constructed of 3 inch wide x 2 inch deep x .250 inch wall thickness and shall be located outboard of the internal upright supports to provide a rigid structure for the compartments to be mounted to. The compartment openings shall be constructed of 3 inch high x 2 inch wide x .125 inch wall thickness cross members and shall be placed in between the external upright supports to define the openings of all enclosed body compartments again, providing a rigid mounting location for compartments.

COMPARTMENT FLOOR-SWEEP OUT STYLE

Each compartment shall feature a raised floor sufficient enough so the lip of the compartment shall clear the frame rail of the body module to allow debris to be removed easily from the compartment. A hat shaped support shall be placed under the floor to improve stability and prevent bowing of the floor with use and age.

COMPARTMENTATION

All compartments shall be constructed of smooth aluminum and welded for strength and shall be sealed from the elements. The compartments shall be attached to the aluminum superstructure only, in order to maintain a truly modular design. Each compartment shall include ventilation louvers which shall be provided on each side panel of the compartment to maximize moisture evacuation for the protection of the equipment and the compartment itself. Louvers shall be placed in the ventilation holes to prevent debris transfer to and from the inside of the body module. Each compartment shall feature a smooth edges and surfaces from the walls to each weld without burrs or sharp edges in the material.

DRIVER SIDE COMPARTMENT D1

The driver's side forward compartment shall be located ahead of the rear wheels and shall include a "clear door opening" measurement of approximately 46" wide x 32" high. Compartment depth shall be determined by space available and shall measure approximately 25.5".

COMPARTMENT VENTILATION

A minimum 2-inch single "Weber" style polished stainless steel swivel vent with four (4) 1/4-inch vent holes shall be provided. These vents shall have a stainless steel center bolt to lock the vent in either the open or closed position and be located in the compartment walls. All vents will contain fire resistant filters to minimize dust entering the compartment.

COMPARTMENT FLOOR DRAIN

The compartment shall be provided with rear corner floor drains to the underside of the body.

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COMPARTMENT SILL PLATE

The compartment shall feature a polished stainless steel sill plate protecting the painted surface of the compartment when items are accessed.

ADJUSTABLE UNISTRUT

Adjustable Uni-Strut equipment mounting tracks shall be installed inside the compartment with two (2) channels on the left wall and two (2) channels on the right wall. The tracks shall be positioned to provide support for equipment mounting. The length of the tracks shall be sized to allow for optimum use of the compartment interior.

Adjustable Uni-Strut equipment mounting tracks shall be installed inside the compartment with one horizontally installed on the back wall near the top of the compartment.

ADJUSTABLE SHELF

There shall be (1) adjustable shelf(ves) installed; and the shelf(ves) shall be constructed of .125" thick smooth aluminum plate and be mounted in the specified compartment with double bolt aluminum shelf brackets. The shelf(ves) shall have a broken front edge, and a broken rear edge for added strength and reinforcement.

COMPARTMENT SHELF GRATING

The specified compartment shelf shall be fitted with removable interlocking vinyl Dri-Dek grating. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The specified Dri-Dek grating shall be black in color.

The compartment shelf and or shelves shall have reflective striping added to the outside lip. The stripe shall be a 1-1/2" minimum in width.

Specified part shall include Red and White DOT approved reflective striping.

COMPARTMENT GRATING

The compartments shall be fitted with removable interlocking vinyl Dri-Dek grating. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

COMPARTMENT GRATING EDGE

The Dri-Dek grating shall be equipped with beveled edges where required.

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The specified Dri-Dek grating shall be black in color.

COMPARTMENT LIGHTING

The specified compartment shall have two vertical Code 3 800 series lights installed.

DOOR AJAR SENSOR

The Specified door(s) shall feature a magnetic proximity switch to indicate when the compartment door is ajar.

PASSENGER SIDE COMPARTMENT P1

The passenger's side front lower compartment shall be located ahead of the rear wheels and shall include a "clear door opening" measurement of approximately 46" wide x 32" high. Compartment depth shall be determined by space available and shall measure approximately 25.5".

COMPARTMENT VENTILATION

A minimum 2-inch single "Weber" style polished stainless steel swivel vent with four (4) ¼-inch vent holes shall be provided. These vents shall have a stainless steel center bolt to lock the vent in either the open or closed position and be located in the compartment walls. All vents will contain fire resistant filters to minimize dust entering the compartment.

COMPARTMENT FLOOR DRAIN

The compartment shall be provided with rear corner floor drains to the underside of the body.

COMPARTMENT SILL PLATE

The compartment shall feature a polished stainless steel sill plate protecting the painted surface of the compartment when items are accessed.

ADJUSTABLE UNISTRUT

Adjustable Uni-Strut equipment mounting tracks shall be installed inside the compartment with two (2) channels on the left wall and two (2) channels on the right wall. The tracks shall be positioned to provide support for equipment mounting. The length of the tracks shall be sized to allow for optimum use of the compartment interior.

Adjustable Uni-Strut equipment mounting tracks shall be installed inside the compartment with one horizontally installed on the back wall near the top of the compartment.

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ADJUSTABLE SHELF

There shall be (1) adjustable shelf(ves) installed; and the shelf(ves) shall be constructed of .125" thick smooth aluminum plate and be mounted in the specified compartment with double bolt aluminum shelf brackets. The shelf(ves) shall have a broken front edge, and a broken rear edge for added strength and reinforcement.

COMPARTMENT SHELF GRATING

The specified compartment shelf shall be fitted with removable interlocking vinyl Dri-Dek grating. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The specified Dri-Dek grating shall be black in color.

The compartment shelf and or shelves shall have reflective striping added to the outside lip. The stripe shall be a 1-1/2" minimum in width.

Specified part shall include Red and White DOT approved reflective striping.

COMPARTMENT GRATING

The compartments shall be fitted with removable interlocking vinyl Dri-Dek grating. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

COMPARTMENT GRATING EDGE

The Dri-Dek grating shall be equipped with beveled edges where required.

The specified Dri-Dek grating shall be black in color.

COMPARTMENT LIGHTING

The specified compartment shall have two vertical Code 3 800 series lights installed.

DOOR AJAR SENSOR

The Specified door(s) shall feature a magnetic proximity switch to indicate when the compartment door is ajar.

WHEEL WELL PANEL CONSTRUCTION

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The outer wheel well panel shall be an integral part of the overall body design and constructed of aluminum. It shall be welded in to place. The exterior wheel well area shall be painted to match the body.

WHEEL WELL LINERS

Wheel well liners designed to protect the body from impact resulting from road debris thrown by the tires shall be installed. The removable liners shall be constructed from UHMW material to encompass the entire inner wheel well area. The liners shall be secured with threaded fasteners.

TANDEM REAR WHEEL FENDERETTES

Rubber fenderettes shall be installed over the four (4) tandem rear wheel openings. The fenderettes shall be positioned outside of the wheel well panel to cover the tire area that extends past the body. The fenderettes shall be secured with threaded fasteners.

RUB RAILS, CLEARANCE LIGHTS, AND REFLECTIVE TAPE

The sides of the lower body area fore and aft of the wheel well area shall be provided with 2" x 1.25" x .250" extruded aluminum rub rails, with end caps or angled corners.

Specified part shall include White reflective striping.

FRONT OF BODY -- PROTECTIVE SURFACE

The front of the apparatus body shall include a protective surface, constructed of aluminum tread plate material, which shall cover the outboard portion of each side of the body.

FRONT CORNERS OF BODY -- PROTECTIVE SURFACES

The front corners of the apparatus body shall include a protective surface installed. The surface shall be constructed of polished stainless steel material.

REAR BODY PANELS

The entire rear of the apparatus body shall be painted apparatus color.

OUTER REAR BODY PANELS -- PROTECTIVE COVERING

The rear outer panels of the body shall have protective surfaces installed on the corners. The protective covering shall be constructed of polished stainless steel material.

TOP OF BODY COMPARTMENTS -- PROTECTIVE SURFACES

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The top of the side compartments shall have a protective surfaces installed. The surface shall be constructed of aluminum tread plate material.

ALUMININUM – COMPARTMENT DOOR, HINGED OVERLAP

There shall be two (2) double, vertically hinged sets of doors fabricated from aluminum and installed on the apparatus body. Each door shall feature exterior surfaces which overlaps the opening of the compartment. The exterior surface shall be .125” aluminum for durability and damage resistance. The interior surface shall be .080” aluminum for structural support and overall appealing appearance of the compartment. The frame of the doors shall be constructed of 1.75” x 1.75” x .125” aluminum tubing to prevent corrosion and provide structural support. The spacing created by the frame tubing shall be filled with Styrofoam for added support and dent resistance, temperature insulation, and noise reduction.

A .75” lip shall be constructed around the opening of the compartment and the exterior of the door. A rubber seal shall be installed on the .75” lip of both the compartment and the door to provide for a double seal against water and dust. A rain gutter shall be mounted above the latch type door for an added third layer of water protection.

The doors shall be designed utilizing a D-ring latch system. A 6 inch stainless steel D-ring latch, large enough to accommodate a gloved hand, shall be mounted on the exterior of the door to allow the door to seal and fasten in the closed position. A stainless steel bezel shall be installed to house and protect the D-ring locking mechanism. The easily serviced bezel shall be mounted utilizing stainless steel screws for added stability of the mechanism and ease of maintenance in the event of damage. The D-ring locking mechanism shall be of a double catch design. The first catch shall engage to secure the door in the event of improper closure. The second catch will seal the door to water and other elements once the doors has been properly closed.

The doors shall be mounted with a stainless steel hinges with .25” diameter hinge pin for stability. The vertical hinges shall be mounted to the body frame with threaded inserts and stainless steel screws to preserve functionality with use or age and ease of maintenance in the event of damage.

Gas struts shall be utilized to hold the door in the open position and to prevent the door from slamming during closing. The gas struts are mounted directly to the door with a stainless steel bracket assembly for stability and ease of maintenance. The gas struts shall be mounted to the interior of the compartment with fully adjustable assembly for ease of adjustment and maintenance while increasing stability.

The specified door(s) shall have a Polished stainless-steel D-ring door handle.

The specified door(s) D-ring handles shall be equipped with manual key door locks keyed to use the 1250 key.

COMPARTMENT DOOR EDGE STRIPING

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The hinged compartment doors shall have reflective striping applied on the edges. The stripe shall be a 1-1/2" minimum in width.

Specified part shall include Red and White DOT approved reflective striping.

REAR STEP

The rear step shall have a frame work constructed of structural aluminum angles. There shall be channels on the exterior perimeter with center supports forming an independent assembly, and shall be bolted to the rear body structural framing to provide body protection and a solid rear stepping platform.

The walking surface of the rear step shall be aggressive DIAMOND BACK aluminum extrusions that complies to applicable NFPA standards.

FOLDING STEP -- DRIVERS SIDE FRONT

There shall be one (1) Innovative Controls chrome plated zinc steps installed. The steps shall be a spring loaded design with an approx 8" by 6" stepping surface and feature a BME logo and an LED light to light up the stepping surface. The step shall be installed on the front drivers side of the body.

FOLDING STEP -- PASSENGER SIDE FRONT

There shall be one (1) Innovative Controls chrome plated zinc steps installed. The steps shall be a spring loaded design with an approx 8" by 6" stepping surface and feature a BME logo and an LED light to light up the stepping surface. The step shall be installed on the front passenger side of the body.

HANDRAILS

Two (2) knurled type non-slip handrail, approximately 36" in length, shall be vertically installed.

ROOF ACCESS LADDER

A Ziamatic swing out and down ladder shall be installed on the drivers side of the rear body panel for access to the roof. The ladder shall be designed to store parallel to the body when not in use. A handle shall be provided to unlock the ladder from the travel position to allow the ladder to be pulled out to a comfortable climbing angle.

Release of the handle allows the ladder to latch automatically and it will not retract until the scissor lock is raised. The ladder shall have a two-rung fold-down section and a six-rung main ladder section and be equipped with cast aluminum rungs having flat, non-skid surfaces to provide traction and safety.

LADDER LIGHTING

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There shall be two (2) Whelen 0S series part# 0AC0EDCR 45 degree angled light(s) installed to adequately illuminate the rear ladder.

HOSE BODY CONSTRUCTION SPECIFICATIONS

The hose bed side sheets and floor shall be constructed from aluminum material. The hose body shall be free of sharp corners, bolts, or other obstructions that may catch hose and other equipment.

HOSE BED DIVIDER

One (1) adjustable width hose bed divider constructed from no less than .250 (1/4") aluminum material shall be installed. The divider shall be secured to the hose bed by utilizing adjustable track type channels and fasteners. The divider shall be full length and depth of the hose bed.

ALUMINUM HOSEBED GRATING

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, contoured ribbed top surface. The slats shall be of widths approximately 3/4" high x 7.5" wide and shall be riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

HYPALON HOSEBED COVER

The apparatus shall be equipped with a Hypalon hose bed cover with a positive secured compliant rear flap.

The hosebed cover shall be black in color.

WATER TANK SPECIFICATIONS

The water tank shall have a capacity of 3000 gallons.

WATER TANK WARRANTY

The polypropylene water tank that is specified to be supplied with this apparatus shall be warranted by the water tank manufacturer for a "lifetime" period from the date that the apparatus is put into service. The tank manufacturer shall repair, at no cost to the purchaser, any problems caused by defective materials and/or workmanship. The warranty shall cover the reasonable costs of removing the water tank from the apparatus and reinstalling it after the completion of the covered warranty repairs, but shall not cover any liability for the loss of service or downtime costs of the apparatus.

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NFPA COMPLIANCE

The water tank construction shall conform to applicable NFPA standards.

TANK FILL PROVISIONS

A 10" square x 10" high fill tower shall be equipped with a hinged, watertight cover and a removable screen to catch debris. A color-coded label or visible permanent marking that reads "WATER TANK FILL" shall be placed at or near the water tank fill opening. The fill tower shall be centrally located at the front area of the tank.

SQUARE DUMP FLANGE

There shall be a 10" square quick dump flange incorporated in the tank design. It shall be located at the rear of the tank; centered at the bottom.

DIRECT TANK FILL FLANGE

There shall be a 4" direct tank fill flange, with diffuser incorporated in the tank design.

TANK SUMP

A 12" square x 4" deep sump shall be installed in the bottom of the water tank. The water tank sump shall be equipped with anti-swirl device.

WATER TANK DRAIN PROVISIONS

A 3" plugged drain provision shall be installed in the bottom of the water tank, sump, or plumbing for water tank draining and the flushing-out of debris.

WATER TANK SLEEVE

A 6" outside diameter sleeve shall be incorporated into the fabrication of the water tank. The horizontal sleeve shall allow 5" piping to pass through the tank.

CLASS A FOAM TANK SPECIFICATIONS

The Class A foam tank shall have a capacity of 20 gallons.

FOAM TANK WARRANTY

The foam tank shall carry a "lifetime" warranty against defects in workmanship and perforation corrosion. The provisions of this warranty shall be provided in the delivery documentation. The tank manufacturer shall repair,

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at no cost to the purchaser, any problems caused by defective materials and/or workmanship. The warranty shall cover the reasonable costs of removing the water tank from the apparatus and reinstalling it after the completion of the covered warranty repairs, but shall not cover any liability for the loss of service or downtime costs of the apparatus.

FOAM TANK FILL AND VENTING PROVISIONS

The foam concentrate tank shall be provided with a fill pipe having a volume of not less than 2 percent of the total tank volume. The filler opening shall be capped with a sealed air-tight threaded cover. The fill opening shall be designed to incorporate a removable screen and shall be located so that foam concentrate from a five (5) gallon container can be dumped into the tank.

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

A color coded label or visible permanent marking that reads "CLASS A -- FOAM TANK FILL" shall be placed at or near the foam concentrate tank fill opening. An additional label shall be placed at or near any foam concentrate tank fill opening stating the type of foam concentrate the system is designed to use.

Any restrictions on the types of foam concentrate that can be used with the system shall also be stated, along with a warning message that states "WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM."

A 3/4" diameter connection, piping, and gate type valve shall be installed for the foam tank for draining purposes.

CENTER REAR 180 DEGREE QUICK DUMP VALVE

A Newton Kwik-Dump 10" 180 degree swivel dump chute shall be supplied. The dump chute shall be centrally located at the rear of the vehicle at a height that allows for proper operation.

All components exposed to the contents of the tank shall be constructed from stainless steel or other non-corrosive materials.

A Newton quick dump model #4036-34 36" stainless steel quick dump chute extension shall be installed on quick dump.

Quick Dump Valve

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A manual style flip type stainless steel quick dump valve shall be installed on the quick dump.

TANK FILL VALVE

(1) Firemen's Friend check valve for direct filling of the tank shall be installed. The valve shall be configured with 4" NST female threads, intake screen, threaded plug with retention chain. The valve shall be located on the drivers side rear of the body.

12 VOLT ELECTRICAL SPECIFICATIONS

The following describes the low voltage electrical system on the apparatus including all panels, electrical components, switches and relays, wiring harnesses, and other electrical components. The apparatus manufacturer shall conform to the latest Federal DOT standards, current automotive electrical system standards, and the applicable requirements of the current NFPA standards.

Wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected. Voltage drops shall not exceed 10 percent in all wiring from the power source to the user device. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. Exposed wiring shall be run in a loom with a 290 degree Fahrenheit rating. Wiring looms shall be properly supported and attached to body members. Electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

All wiring connections and terminations shall provide positive mechanical and electrical connections and be installed in accordance with the device manufacturer's instructions. When wiring passes through metal panels, electrical connections shall be with mechanical type fasteners and rubber/plastic grommets.

Wiring between cab and body shall be split using Deutsch type connectors or enclosed in a terminal junction panel allowing body removal with minimal impact on the apparatus electrical system. Connections shall be insulated with heat shrink crimp-type tubing to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout the system.

Electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. When required, automatic reset breakers and relays shall be housed in the main body junction panel.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless enclosed in an electrical junction box or covered with a removable electrical panel. Wiring shall be secured in place and protected against heat, liquid contaminants, damage, and shall be uniquely identified at least every six inches (6") by color-coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA standards.

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

The electrical system shall include the following:

Electrical terminals in weather-exposed areas shall have a non-conductive grease or spray applied. All terminal plugs located outside of the cab or body shall be treated with a corrosion preventative compound.

All electrical wiring shall be placed in a protective loom or be harnessed.

Exposed connections shall be protected by heat shrink material and sealed connectors.

Large fender washers shall be used when fastening equipment to the underside of the cab roof and all holes made in the roof shall be caulked with silicone.

Electrical components installed in exposed areas shall be mounted in a manner that will not allow moisture to accumulate inside.

A service loop shall be provided behind an electrical appliance to allow them to be pulled away from the mounting area for inspection and service work.

Upon completion of the vehicle and prior to delivery, the apparatus shall be electrically tested and the electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of the applicable NFPA standard.

ELECTRICAL WIRING HARNESS

The electrical system shall be divided into separate harnesses. The individual harness shall be connected to the electrical box with Deutsch type quick connectors. The wiring and appliances shall be protected by automatic reset type circuit breakers.

CUSTOM FABRICATED CONSOLE

A custom fabricated electrical console and enclosure shall be located between the driver's and the officer's seating positions. The console shall feature a flat lid with two rows of havis style plates side by side.

CONSOLE MAP BOX

There shall be a map box attached to the rear of the console. The map box shall be painted to match the console.

The specified compartment(s) shall be coated with Black/Black colored Multi-Spec paint.

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BATTERY SWITCH - MASTER DISCONNECT

A battery cutoff switch shall be provided in the cab within easy reach of the driver; by the chassis manufacturer. There shall be a 200amp continuous rated solenoid installed and switched by the OEM battery master switch.

BATTERY CHARGER

A Kussmaul Autocharge 1000 PLC, model #091-215-12, automatic battery charger shall be provided. The battery charger shall be wired to the 12 volt battery system. The unit shall be mounted in a clean, dry area accessible for service and/or maintenance. It shall be wired to the specified shore power receptacle. Included in the package is a Kussmaul Super 15 Auto Eject Deluxe with built in bar graph display.

ENGINE BLOCK HEATER WIRING

A 120 volt engine block heater shall be installed by chassis manufacturer and shall be wired to the specified shore power receptacle.

The specified auto eject cover shall be grey.

IDENTIFICATION LIGHTS

All LED identification lights shall be installed on the vehicle as required by applicable highway regulations.

LICENSE PLATE MOUNTING AND LIGHT

A predrilled backing plate and LED light shall be installed on the rear for mounting of the license plate.

Stop, Tail, Turn Lights, Tomar, 4" x "6, Triple, Package

STOP AND TAIL LIGHT

Two (2) Tomar Model # R46L-STT 4" x 6" LED stop and tail lights with clear lenses shall be provided. The light can be used in combination with a separated turn signal, or alone as a Brake, tail, and turn light.

TURN SIGNALS

Two (2) Tomar model# R46L-TURN 4" x 6" LED turn signal lights with clear lenses shall be provided.

TAILLIGHT BEZELS

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Two (2) Tomar Chrome plastic housings Model #R46-BZ3 shall be installed at the rear of the apparatus for Three (3) Tomar 4" x 6" stop-tail-turn-backup and warning lights.

ZONE C- LOWER REAR WARNING LIGHT - DRIVER SIDE

(1) Tomar Revolution multi-function Model # R46D-W-BAW LED light shall be installed. The dimensions of the light shall be 4" x 6". The light shall be equipped with a clear lens, and emit blue, white and amber light.

Light shall be installed on the driver's side.

ZONE C- LOWER REAR WARNING LIGHT - PASSENGER SIDE

(1) Tomar Revolution multi-function Model # R46D-W-RAW LED light shall be installed. The dimensions of the light shall be 4" x 6". The light shall be equipped with a clear lens, and emit red, white and amber light.

FRONT BUMPER -- GROUND LIGHTS

There shall be two (2) Tecniq E10, LED ground light(s) installed under the front bumper.

The ground lights shall be activated when parking brake is set, or the transmission is placed into park (where applicable).

CAB DOOR -- GROUND LIGHTS

There shall be two (2) Tecniq E10, LED ground lights installed under the cab door(s).

The ground lights shall be activated when parking brake is set, or the transmission is placed into park (where applicable).

GROUND LIGHTS - PUMP PANEL

There shall be two (2) Tecniq E10, LED ground lights installed under the pump panel running board(s).

The ground lights shall be activated when parking brake is set, or the transmission is placed into park (where applicable).

GROUND LIGHTS - FRONT BODY

There shall be two (2) Tecniq E10, LED ground lights installed under the front body compartment(s).

The ground lights shall be activated when parking brake is set, or the transmission is placed into park (where applicable).

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GROUND LIGHTS - UNDER REAR SIDE COMPARTMENT

There shall be two (2) Tecniq E10, LED ground lights installed under the rear side body compartment(s).

The ground lights shall be activated when parking brake is set, or the transmission is placed into park (where applicable).

GROUND LIGHTS - UNDER REAR STEP

There shall be two (2) Tecniq E10, LED ground lights installed under the rear step area.

The ground lights shall be activated when parking brake is set, or the transmission is placed into park (where applicable).

LADDER LIGHTING

There shall be two (2) Whelen 0S series part# 0AC0EDCR 45 degree angled light(s) installed to adequately illuminate the rear ladder.

SCENE LIGHTS

Two (2) Tomar Revolution Model# R79L-13 7" by 9", clear LED flood scene light(s) shall be installed. The light(s) shall feature a 13 degree down angle lens. The light(s) shall include a rubber gasket for surface mounting.

The specified Tomar 7" x 9" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R79-BZ

DOOR OPEN WARNING LIGHT

A door open warning light shall be installed on cab dash. The light shall be a flashing LED light with a red lens. The light shall include a label, "Do Not Move Apparatus When Light is ON".

"DOOR OPEN" AND EQUIPMENT OPERATION ALARM

A buzzer or alarm shall be installed in cab to indicate "doors open" or equipment operation on the apparatus. The buzzer shall operate when parking brake is released.

RADIO ANTENNA INSTALLATION

There shall be one (1) radio antenna installed on the apparatus and routed to the cab center console.

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BACK UP ALARM

One (1) solid state back up alarm shall be provided at the rear of the apparatus. The back up alarm shall be wired to the reverse circuit of the transmission, and shall provide an audible alarm to the rear of the apparatus when reverse gear is selected. The alarm shall have a volume of 87 to 112 db while in operation.

BACK UP CAMERA

There shall be a Rear View Safety back up camera system supplied and installed on the apparatus.

HEADLIGHT FLASHER

The headlights shall be set to alternate flash (Wig-Wag).

The wig wag shall be triggered by the siren controller slide switch position 3.

ELECTRONIC SIREN

Tomar Model 948 Siren amp and electronic controller, shall be provided. The siren controller shall have a 4 position slide switch, along with 6 auxiliary switches to control outputs, also to contain siren controls. Model # 948L-SIREN-R.

SIREN SPEAKER

One (1) Tomar Model # SPK100 speaker shall be provided.

ZONE A -- UPPER FRONT -- LIGHTBAR

One (1) Tomar Scorpion 58" lightbar Model# 970L-58DT-BR Shall be installed. The lightbar shall contain full dual color front and sides (red/blue/wht). Lightbar shall include CA flash rates and CA steady red. The front of the lightbar shall be fully populated with eight (8) 12-LED modules, High-power off-road TRX take downs, and four (4) 24-LED corner modules with alley lights. The light bar shall be aluminum in color.

ZONE A -- LOWER FRONT WARNING LIGHTS

(1) Tomar revolution dual color Model# R37D-W-RW LED light shall be installed. The dimensions of the light shall be 3" x 7". The light shall be equipped with a clear lens, and red and white LED.

The light shall be installed on the driver's side of the grill.

The specified Tomar 3" x 7" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R37-BZ

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ZONE A -- LOWER FRONT WARNING LIGHTS

(1) Tomar revolution dual color Model# R37D-W-BW LED light shall be installed. The dimensions of the light shall be 3" x 7". The light shall be equipped with a clear lens, and blue and white LED.

The light shall be installed on the passenger's side of the grill.

The specified Tomar 3" x 7" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R37-BZ

ZONE B AND D- INTERSECTION LIGHTS

Two (2) Tomar revolution dual color Model# R37D-W-RW LED lights shall be installed. The dimensions of the lights shall be 3" x 7". The lights shall be equipped with a Clear lens, and Red and White LED.

The specified Tomar 3" x 7" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R37-BZ

ZONE B AND D LOWER MID BODY WARNING LIGHTS

Two (2) Tomar revolution dual color Model# R37D-W-BW LED lights shall be installed. The dimensions of the lights shall be 3" x 7". The lights shall be equipped with a Clear lens, and Blue and White LED.

The specified Tomar 3" x 7" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R37-BZ

ZONE B AND D LOWER REAR CORNER WARNING LIGHTS

Two (2) Tomar revolution dual color Model# R37D-W-BW LED lights shall be installed. The dimensions of the lights shall be 3" x 7". The lights shall be equipped with a Clear lens, and Blue and White LED.

The specified Tomar 3" x 7" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R37-BZ

ZONE B AND D- UPPER SIDE FRONT WARNING LIGHTS

Two (2) Tomar revolution dual color Model# R37D-W-RW LED lights shall be installed. The dimensions of the lights shall be 3" x 7". The lights shall be equipped with a Clear lens, and Red and White LED.

The specified Tomar 3" x 7" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R37-BZ

ZONE B AND D- UPPER SIDE REAR WARNING LIGHTS

Two (2) Tomar revolution dual color Model# R79LV13-RW series LED lights shall be installed. The dimensions of the lights shall be 7" x 9". The lights shall be equipped with a Clear lens, and red and white LED.

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The specified Tomar 7" x 9" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R79-BZ

ZONE C- UPPER REAR WARNING LIGHT - DRIVER SIDE

(1) Tomar revolution dual color Model# R79LVD13-RAW series LED light shall be installed. The dimensions of the light shall be 7" x 9". The light shall be equipped with a clear lens and red, amber, and white LED.

The light shall be installed on the driver's side.

The specified Tomar 7" x 9" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R79-BZ

ZONE C- UPPER REAR WARNING LIGHT - PASSENGER SIDE

(1) Tomar revolution dual color Model# R79LVD13-BAW series LED light shall be installed. The dimensions of the light shall be 7" x 9". The light shall be equipped with a clear lens and blue, amber, and white LED.

The light shall be installed on the passenger's side.

The specified Tomar 7" x 9" light(s) shall be equipped with a Tomar bezel Chrome in color. Model # R79-BZ

REAR TRAFFIC ADVISOR, EIGHT (8) LAMPS

A Tomar L stick traffic advisor model # LSTICK-14TD8-B LED shall be provided and mounted at the rear of the body. The traffic advisor shall include a 40' cable.

PAINT CODES/COLORS

The apparatus shall be painted the following color(s): Pierce 117 Red lower with Pierce 20 White upper.

BODY PAINTING SPECIFICATIONS

All exposed surfaces shall be prepared and painted using a multi-step process to ensure a blemish-free, protective coating for the base metal materials.

All removable items, such as brackets and compartment doors, shall be removed and painted separately to insure finish paint behind them after they are reinstalled.

Due to its modular design, the apparatus body shall be completely finish painted prior to its installation on the chassis.

The body shall be sanded, and cleaned. Any imperfections or defects in the metal shall be corrected with

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premium body filler and then sanded smooth.

An epoxy primer shall be utilized on all painted and coated surfaces and shall prepare the metal for the final paint. The direct-to-metal primer shall be used to create a first level seal allowing secure adhesion between the base metal and the subsequent substrates.

All body and components shall then be primed, thoroughly sanded, and meticulously inspected for any imperfections; which shall be properly corrected..

All surfaces shall then be painted with a base coat of premium paint following the guidelines as established by the paint manufacturer. The body shall be painted using a single color to match the cab primary color, and then shall be buffed to a high gloss finish.

INTERIOR COMPARTMENT FINISH

The interior wall, floor and ceiling surfaces of compartments shall be finished with Rust-Oleum brand Multispec color flecked paint.

The specified compartment(s) shall be coated with Gray Stone colored Multi-Spec paint.

TOUCH-UP PAINT

Touch-up paint (one for each color) shall be furnished with the completed truck at final delivery.

STRIPING PACKAGE- SINGLE 4" STRIPE

There shall be a single 4" reflective stripe installed one on each side of the apparatus. The stripe is limited to single color only.

CHEVRON STRIPING

The rear panels of the body shall have 3M brand, 6" wide, reflective striping installed in the available area. The Chevron style stripes shall be applied at a 45-degree angle, pointing towards the center upper portion of the rear panel. The Chevron striping shall cover the entire rear of the apparatus.

CHEVRON COLORS

The specified chevron colors shall be red and yellow.

SUCTION HOSE

There shall be **NO** suction hose supplied on the apparatus.

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HARD SUCTION MOUNTINGS -- LEFT SIDE

There shall be one (1) horizontally mounted .188" aluminum hard suction hose tray(s) installed. The tray(s) shall be equipped with spring loaded hose clamps. Location shall be: left side.

PORTABLE WATER TANK MOUNTING -- RIGHT SIDE

One (1) Zico 12 volt electric folding tank mounting shall be installed on the right side of the apparatus. The Quic-Lift assembly shall be comprised of a high strength aluminum casting with a 12 volt electric lift system for raising and lowering the folding tank. The storage system shall be powered by a 12 volt self-contained electric power unit. The Quic-Lift system shall be mounted in an upright position above the compartments.

The lift control shall be a momentary switch, properly labeled. The mounting shall be equipped with reflective stripping and red flashing marker lights, front and rear, which activate when the rack is moved out of the locked position. A warning light shall be provided in the cab. The light shall flash whenever the rack is out of the stored position. An alarm system shall be provided when in operation which shall be interlocked with the neutral safety and parking brake switch. The storage system shall be built to meet NFPA standards.

FOLDING TANK COVER (ALUMINUM DIAMOND PLATE)

The folding tank shall have an aluminum diamond plate cover.

WHEEL CHOCKS

Two (2) Zico brand, Model#AC-2 aluminum wheel chock blocks, with mounting brackets, shall be provided and installed on the apparatus body. The mounting locations for the chock blocks shall be one (1) each side of the apparatus body.

5# DRY CHEMICAL FIRE EXTINGUISHER

One (1) 5# ABC dry chemical fire extinguisher and mounting bracket shall be provided on the apparatus. The extinguisher shall have a pressure gauge and shall be filled with a dry chemical extinguishing agent.

HYDRAULIC JACK

One (1) hydraulic jack shall be provided. The jack shall be designed for lifting capacity of twelve (12) tons.

LUG WRENCH

There shall be one (1) lug wrench provided and shipped loose with the completed apparatus.

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REFLECTOR

A set of three (3) triangular reflectors shall be provided.