

Build Specifications

05183-001 Onaway, MI

GENERAL SPECIFICATIONS

Crimson Fire submits the following detailed proposal is submitted for your consideration:

Unit will be protected by permanent Anti-Freeze for operation between -30 degrees F to +235 degrees F and shall have all fluid levels filled prior to delivery.

Unit will be designed and constructed to follow the requirements of the following:

FMVSS; DOT; ICC; NFPA Pamphlet 1901; SAE; TRA; ULI; TBEA; and State Motor Vehicle regulations (NFPA loose equipment not requested is not included).

Crimson Fire is a subsidiary of Spartan Motors Inc. at 1000 Reynolds Road, Charlotte MI.

Crimson Fire (formerly Luverne Fire Apparatus) has been in operation since 1912. Crimson Fire maintains a complete, on-site parts department, and ships spare parts orders the same day they are received.

The apparatus will be manufactured at 907 7th Avenue North at Brandon, South Dakota.

Spartan Motors Inc. has been in operation since 1975. Spartan Motors Inc. maintains a complete, on-site parts department, and ships spare parts orders the same day they are received.

The chassis will be manufactured at 1000 Reynolds Road, Charlotte, MI.

Zahnen Truck Service & Equipment, Inc., is the authorized dealership for Crimson Fire in the state of Michigan.

Authorized factory servicing shall be provided by Emergency Vehicle Services, Inc., "EVS" located at Belding, MI.

"EVS" provides 24-7-365 mobile services for all warranty and service needs.

"EVS" employs EVT and ASE certified mechanics.

The apparatus will be designed and assembled completely in the USA.

Unit will be quality control inspected and documented at each step of manufacturing, and will be fully road tested.

Unit will be fully covered by manufacturer's insurance until delivery is made.

Unit will be designed and assembled so that all recommended daily maintenance checks can be performed easily by the operator without the need for hand tools. Apparatus components that interfere

Build Specifications

05183-001 Onaway, MI

with removal or repair of other major components will be attached with fasteners and installed with normal hand tools. These components will not be welded or otherwise permanently secured into place.

A test data plate will be provided at the pump operator's position which gives the rated discharges and pressures, together with the speed of the engine as determined by the manufacturer's test for this unit.

A manufacturer's certification of GVWR and GAWR on a nameplate will be affixed to the completed vehicle.

A permanent plate mounted in the driver's compartment will be supplied. It will specify the quantity and type of the following fluids used in the vehicle: engine oil, engine coolant, chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used), and drive axle lubrication fluid.

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

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" will be provided. They will be visible from each seated position.

An accident prevention sign will be located at the rear step area of the apparatus. It shall warn personnel that standing on the step while vehicle is in motion is prohibited.

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

The height of the fully loaded vehicle's center of gravity will not exceed the chassis manufacturer's maximum limit.

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

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

All manufacturers' operations and maintenance documents supplied with components and equipment installed on, or supplied with the completed vehicle will be provided.

Any special tools that are required to service any component will be provided with the completed apparatus. (When applicable)

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

The apparatus when fully loaded will be capable of the following performance on dry, level paved roads in good condition.

Build Specifications

05183-001 Onaway, MI

From a standing start the vehicle will attain a true speed of 35 mph within 25 seconds.

From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.

The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.

The vehicle will attain a minimum speed of 50 mph.

The GAWR and GVWR of the chassis will be adequate to carry the fully equipped apparatus including water and other tanks filled, the specified hose load, unequipped personnel weight, ground ladders, and a miscellaneous equipment allowance per NFPA criteria as well as additional equipment and personnel specified by purchaser.

Personnel is calculated at 200 lbs per person.

LIABILITY INSURANCE COVERAGE

Crimson Fire certificate of liability insurance coverage is included in this proposal, which exceeds \$50 million dollars.

BID DRAWINGS

Drawings of the unit proposed have been furnished with this proposal.

WARRANTIES

Warranties are listed in the bid packet.

PUMP & PLUMBING PERFORMANCE TEST

The apparatus pump and plumbing system shall be tested and certified.

12-VOLT ELECTRICAL TEST

The apparatus low voltage electrical system shall be tested and certified.

SUPPLIED INFORMATION & EXTRAS

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

Build Specifications

05183-001 Onaway, MI

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

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

Owner name and address;

Apparatus manufacturer, model, and serial number;

Chassis make, model, and serial number;

GAWR of front and rear axles;

Front tire size and total rated capacity in pounds;

Rear tire size and total rated capacity in pounds;

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

Engine make, model, serial number, number of cylinders, bore, stroke, displacement and compression ratio, rated horsepower and related speed per SAE J690, Certificate of Maximum Net Horsepower for Motor Trucks and Tractors, and no load governed speed;

Type of fuel and fuel tank capacity;

Electrical system voltage and alternator output in amps;

Battery make and model, capacity in CCA;

Paint numbers;

Company name and signature of responsible company representative;

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

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

Transmission make, model, and type;

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

Engine to pump gear ratio and transmission gear ratio used;

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

Pump manufacturer's certification of suction capability;

Pump manufacturer's certification of hydrostatic test;

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

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

Pump transmission make, model and serial number;

Priming device type;

Type of pump pressure control system;

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

Certification of water tank capacity;

DELIVERY

Build Specifications

05183-001 Onaway, MI

A factory-authorized individual shall deliver the unit under its own power. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

GENERAL WARRANTY

We warrant each new fire apparatus manufactured by Crimson Fire for a period of one (1) year from the date of delivery, except for the chassis and certain other components as noted in paragraph three.

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

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

This warranty shall not apply to any fire apparatus, which has been repaired or altered outside our factory in any way, unless prior written authorization has been received from Crimson Fire. This warranty shall not apply to those items, which are usually considered normal maintenance and upkeep services including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps and reels.

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

STRUCTURAL WARRANTY

A structural warranty will be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

PAINT WARRANTY

A seven (7) year Paint Warranty will be included with the apparatus.

PUMP WARRANTY

A pump warranty shall be provided by the pump manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of three (3) years or three thousand (3000) hours of usage, whichever comes first.

Build Specifications

05183-001 Onaway, MI

TANK WARRANTY

A lifetime tank warranty shall be provided by the tank manufacturer.

MAXIMUM OVER ALL WIDTH OF NINETY-NINE (99) INCHES

The Apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Over All Width of Ninety-nine (99) Inches. This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripherals that are 'removable' shall not be incorporated into this measurement. Items that are considered 'removable' are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Etc.

CHASSIS

Base Chassis, Model 4400 SBA 4X2 with 209 Wheelbase, 141.9 CA

TOW HOOK, FRONT (2) Frame Mounted.

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.125" x 3.580" x 0.312" (257.2mm x 90.9mm x 8.0mm); 456.0" (11582mm) Maximum OAL

BUMPER, FRONT Full Width, Aerodynamic, Steel; 0.142" Material Thickness
Includes:-PLEASE NOTE: Powder Coated Gray (Argent) Color

WHEELBASE RANGE 199" (505cm) Through and Including 254" (645cm)

AXLE, FRONT NON-DRIVING {International I-120SG} I-Beam Type, 12,000-lb Capacity

SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 12,000-lb Capacity; With Shock Absorbers
Includes:
-SPRING PINS Rubber Bushings, Maintenance-Free

BRAKE SYSTEM, AIR Dual System for Straight Truck Applications
Includes:

- AIR COMPRESSOR AIR SUPPLY LINE International Engines Naturally-Aspirated
- BRAKE CHAMBERS, SPRING (2) Rear Parking
- BRAKE LINES Color Coded Nylon
- SLACK ADJUSTERS, FRONT Automatic
- SLACK ADJUSTERS, REAR Automatic
- PARKING BRAKE VALVE Color-Coded Yellow Knob, Located on Instrument Panel
- DRAIN VALVE Twist-Type
- SPRING BRAKE MODULATOR VALVE
- GAUGE, AIR PRESSURE Air 1 and Air 2 Gauges; Located in Instrument Cluster

DRAIN VALVE, AUTOMATIC {Bendix DV-2} With Heater; for Air Tank

Build Specifications

05183-001 Onaway, MI

AIR BRAKE ABS {Bendix Anti-Lock Brake System} Full Vehicle Wheel Control System (4-Channel)

AIR DRYER {Bendix AD-9} With Heater

BRAKES, FRONT, AIR CAM S-Cam; 16.5" x 5.0"; Includes 20 Sq. In. MGM Long Stroke Brake Chambers

BRAKES, REAR, AIR CAM 16.5" x 7.0"; Includes MGM TR3030 Long Stroke Brake Chamber and Heavy Duty Spring Actuated Parking Brake

AIR COMPRESSOR {Bendix Tu-Flo 550} 13.2 CFM

DUST SHIELDS, FRONT BRAKE

DUST SHIELDS, REAR BRAKE

STEERING COLUMN Stationary

STEERING WHEEL 2-Spoke, 18" Diam., Black

STEERING GEAR {Sheppard M-100} Power

EXHAUST SYSTEM Single, Horizontal, Stainless Steel Muffler with Internal Catalytic Converter, Aluminized Steel Tail Pipe, Tail Pipe Exits at Right Rear Wheel Well, Front is 11" BOC, Mounted Right Side, for 2004 Emissions Standards with International I6 Engines

ELECTRICAL SYSTEM 12-Volt, Standard Equipment

Includes:

- FUSES, ELECTRICAL SAE Blade-Type
- TURN SIGNAL SWITCH Self-Canceling, Headlight Dimmer (with Flash-To-Pass Feature)
- HORN, ELECTRIC Single
- PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light
- STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector
- STARTER SWITCH Electric Key Operated
- TURN SIGNALS, FRONT Includes Reflectors and Auxiliary Side Turn Signals, Solid State Flashers; Flush Mounted
- DATA LINK CONNECTOR for Vehicle Programming and Diagnostics In Cab
- WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted
- WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature, Integral with Turn Signal Switch
- WIRING, CHASSIS Color Coded and Continuously Numbered

CIGAR LIGHTER

ALTERNATOR {Leece-Neville 4949PA} 12 Volt 270 Amp. Capacity, Pad Mounted

Build Specifications

05183-001 Onaway, MI

BODY BUILDER WIRING Back of Standard Cab at Left Frame or Under Extended or Crew Cab at Left Frame; Includes Sealed Connectors for Tail/Amber Turn/Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn

BATTERY SYSTEM (3) {International} Maintenance-Free 12-Volt 1950CCA Total

RADIO {International} AM/FM Stereo with Weatherband, Clock, Includes Multiple Dual Cone Speakers

Includes:

- SPEAKERS IN CAB (4) Coaxial with Premium Interior
- SPEAKERS IN CAB (2) Dual-Cone with Deluxe Interior

HEADLIGHTS Halogen; Composite Aero Design for Two Light System; Includes Daytime Running Lights

STARTING MOTOR {Leece-Neville MS2} 12-Volt; less Thermal Over-Crank Protection

CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III With Trip Indicators, Replaces All Fuses Except For 5-Amp Fuses

GRILLE Chrome

FRONT END Tilting, Fiberglass, With Three Piece Construction

GRILLE EMBER SCREEN Mounted to Grille to Keep Hot Embers out of Engine Air Intake System

PAINT SCHEMATIC, PT-1 Single Color 2401 Red, Design 100

Includes:

- PAINT SCHEMATIC ID LETTERS "GA"

PAINT IDENTITY, PT-2 Single Color, Instruction No. 932. Wheels 2401 Red

PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

PAINT CLASS Single Custom Color

CLUTCH Omit Item (Clutch & Control)

ENGINE, DIESEL {International DT570} 50 State, 310 HP, 950 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, # 2 Bell Housing

Includes

- FUEL/WATER SEPARATOR and FUEL FILTER in a Single Assembly, Mounted on Engine
- COLD STARTING EQUIPMENT Intake Manifold Electric Grid Heater with Engine ECM Control
- WET TYPE CYLINDER SLEEVES
- CRUISE CONTROL Electronic; Controls Integral to Steering Wheel
- ENGINE SHUTDOWN Electric, Key Operated
- GOVERNOR Road Speed, Electronic

Build Specifications

05183-001 Onaway, MI

- ENGINE OIL DRAIN PLUG Magnetic
- OIL FILTER, ENGINE Spin-On Type
- DAMPER, CRANKSHAFT Viscous
- FAN Optimized Position

FAN DRIVE {Horton Drivemaster} "Two Speed" Viscous Type, With Residual Torque Device for Disengaged Fan Speed

Includes:

- FAN Nylon

RADIATOR Aluminum; 2-Row, Cross Flow, Over under System, 630 SqIn Louvered, With 270 Sq In Charge Air Cooler, 4.25" Core

Includes:

- ANTI-FREEZE Shell Rotella Extended Life Coolant -40F (-40C)
- DEAERATION SYSTEM with Surge Tank
- RADIATOR HOSES Premium, Rubber

FEDERAL EMISSIONS for 2004; for International VT365, DT466 and DT570 Engines

AIR CLEANER Single Element

THROTTLE, HAND CONTROL Engine Speed Control for PTO; Electronic, Stationary Pre-Set, Two Speed Settings; Mounted on Steering Wheel

ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Module and Connector for Body Builder Installation of Remote Engine Speed Control, With SAE J1939 Communication

FAN DRIVE SPECIAL EFFECTS Fan Cooling Ring with Fan Shroud Effects, Engine Mounted

ENGINE WATER COOLER {Sen-Dure} Auxiliary, For Use with Fire Trucks

EXPANDED ENGINE TEMP EFFECTS to Allow Higher Engine Operating Temperature Range; Includes Nylon Surge Tank and 15 psi Pressure Cap

TRANSMISSION, AUTOMATIC {ALLISON 3000EVS_P} Close Ratio, 5-Speed; Includes Oil Level Sensor, With Provision for PTO, Less Retarder

Includes:

- TRANSMISSION OIL PAN Magnet in Oil Pan

TRANSMISSION SHIFT CONTROL {ALLISON} Push-Button Type; for Allison 3000 & 4000 Series Transmission

OIL COOLER, AUTO TRANSMISSION Water to Oil Type in Combination with Air to Oil Type, for Auto or Auto Shift Transmissions

Build Specifications

05183-001 Onaway, MI

ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS); Fire/Pumper, Tank, Aerial/Ladder

AXLE, REAR, SINGLE {Dana Spicer S23-170} Single Reduction, 23,000-lb Capacity, With "R" Wheel Ends Gear Ratio: 5.25

Includes:

-REAR AXLE DRAIN PLUG (1) Magnetic

SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 23,500-lb Capacity, With 4500 lb Auxiliary Rubber Spring

FUEL TANK Top Draw; D Style, Steel, 50 U.S. Gal., 189 L Capacity, 16" Deep, With Quick Connect Outlet, Mounted Right Side, Under Cab

Includes:

-FUEL LINES Nylon Tubing with O-Ring Snap-On Quick-Connect Fittings at Both Ends

CAB Conventional, Steel

Includes:

-CLEARANCE/MARKER LIGHTS (5) Flush Mounted

-ARM REST (2) Molded Plastic, Smoke Gray; One Each Door

-FLOOR COVERING Rubber, Black

-COAT HOOK Located on Rear Wall, Centered Above Rear Window

-GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side

-GRAB HANDLE, CAB INTERIOR (2) "B" Pillar Mounted, One Each Side

-STEP (2) Two Steps per Door

-GLASS, ALL WINDOWS Tinted

GAUGE CLUSTER English with English Electronic Speedometer

Includes:

-ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout

-WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage (Visual and Audible)

-GAUGE CLUSTER (5) Engine Oil Pressure (Electronic), Water Temperature (Electronic), Fuel (Electronic), Tachometer (Electronic), Voltmeter

-GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} With Black Bezel Mounted in Instrument Panel

SEAT, DRIVER {National 2000} NFPA Compliant, Air Suspension, High Back With Integral Headrest, Vinyl, Isolated, With 2 Position Front Cushion Adjustment, -3 to +14 Degree Seat Back Adjustment, Single Chamber Air Lumbar Support

Includes:

-SEAT BELT 3-Point, Lap and Shoulder Belt Type

SEAT, TWO-MAN PASSENGER {Gra-Mag} Vinyl, Less under Seat Storage Compartment

Includes:

-SEAT BELT (2) One 3-Point Shoulder Belt and One 2-Point Lap Belt (Center Position)

Build Specifications

05183-001 Onaway, MI

GRAB HANDLE (2) Chrome Towel Bar Type Anti-Slip Rubber Inserts; for Cab Entry Mounted Left and Right

MIRRORS (2) {Lang Mekra} Rectangular, 7.44" x 14.84", Brackets Breakaway Type, With 102" Wide Spacing, With 7.44" sq. Convex Both Sides

CAB MOUNTING HEIGHT EFFECTS mid Cab in Lieu of Low Cab Mounting Height (Approx. 4") for Increased Cooling System Requirements

SEAT BELT All Red; 1 to 3

INSTRUMENT PANEL Center Section, Flat Panel

AIR CONDITIONER {International Blend-Air} With Integral Heater & Defroster

Includes:

- REFRIGERANT Hydro fluorocarbon HFC-134A
- HEATER HOSES Premium

CAB INTERIOR TRIM Deluxe

Includes:

- CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets and Retainer Nets and CB Radio Pocket; Smoke Gray with Black Netting Over Storage Pockets
- "A" PILLAR COVER Molded Plastic, Smoke Gray
- HEADLINER Printed Cloth
- INSTRUMENT PANEL TRIM Molded Plastic, Drawbridge Gray with Black Center Section, Hidden Cup Holder and Ash Tray (Pull-Out)
- DOME LIGHT, CAB Rectangular, Door Activated, Timed Theater Dimming, Center Mounted, Integral to Console
- SUN VISOR (2) Padded Vinyl with Driver Side Toll Ticket Strap, Integral to Console
- STORAGE POCKET, DOOR (1) Molded Plastic, Smoke Gray, Full-Length; Driver Door
- CAB INTERIOR TRIM PANELS Molded Plastic, Full Height; All Exposed Interior Sheet Metal is covered Except for the Following: with a Two-Man Passenger Seat the Back Panel is Only Partially
- DOOR TRIM PANELS (2) Molded Plastic; Driver and Passenger Doors

CAB REAR SUSPENSION Air Bag Type

WHEELS, FRONT DISC; 22.5" Painted Steel, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 8.25 DC Rims; With Steel Hubs.

Includes:

- WHEEL SEALS, FRONT Grease Lubricated, Includes Wheel Bearings
- PAINT IDENTITY, FRONT WHEELS 2401 Red

WHEELS, REAR DUAL DISC; 22.5" Painted Steel, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 8.25 DC Rims; With Steel Hubs

Includes:

Build Specifications

05183-001 Onaway, MI

-WHEEL SEALS, REAR Oil Lubricated, Includes Wheel Bearings
-PAINT IDENTITY, REAR WHEELS 2401 Red

WHEEL SEALS, FRONT {Dana Spicer Out runner} for Oil Lubricated Wheel Bearings

(4) TIRE, REAR 11R22.5 G164 RTD M+S (GOODYEAR) 499 rev/mile, load range G, 14 ply

(2) TIRE, FRONT 11R22.5 G149 RSA (GOODYEAR) 501 rev/mile, load range G, 14 ply

Build Specifications

05183-001 Onaway, MI

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components shall be activated by Carlingswitch V-series rocker style switches. The switches shall be located on a separate embossed electrical panel, fabricated with aluminum complete with backlit name tags describing the function of each individual switch. An internally lighted red rocker switch shall be furnished on the left and identified as the "MASTER EMERGENCY SWITCH".

ELECTRICAL CONTROL CENTER CONSOLE

The rocker switch panel shall be mounted on a custom fabricated electrical control center console mounted below the dash between the driver and officer. Other components such as open door warning light, pump shift controls, vacuum fluorescent display, siren head controller, etc may be mounted on the console as well (depending on space required). If space isn't available on the console, the remaining controls shall be mounted on the cab dash immediately above the console for access by both the driver and officer.

The electrical control center console shall be fabricated of 1/8" smooth aluminum.

The console shall house a majority of the electrical hardware required to serve chassis electrical functions. For ease of service, the hardware shall be accessed by a removable panel on the front of the console. The 1/8" aluminum cover shall be securely fastened and easily removed by a series of threaded fasteners.

The exterior shall be zolatone finished gray, for a pleasing appearance and durable finish.

BATTERY SWITCH - LEVER STYLE

There shall be a Cole Hersee #75903 battery disconnect switch installed to activate the battery system. There shall be a green "battery on" pilot light located adjacent to the switch and visible from the drivers position.

BACK UP ALARM

An electronic backup alarm shall be furnished and installed. It shall be 97 decibels and actuate automatically when transmission gear selector is placed in reverse.

HAZARD LIGHT IN CAB

There shall be a "Door Open" indicator light mounted in the cab. The light shall be mounted to the cab dash between the driver and officer (if possible) and shall activate when the parking brake is released and a compartment door or any additional specified devices are not closed completely. There shall be a placard stating "Do Not Move Apparatus When Light Is On." The light shall be a Weldon LED marker lamp, red in color.

REFLECTIVE STRIPPING

Build Specifications

05183-001 Onaway, MI

Reflective stripping shall be added to the inside of the cab doors in accordance to NFPA regulations.

HORIZONTAL EXHAUST

The chassis shall have a horizontal exhaust system piped to the side of the apparatus body just ahead of the rear wheels.

Build Specifications

05183-001 Onaway, MI

ENGINE COMPARTMENT LIGHTS

There shall be one (1) 12-volt work light installed in the engine compartment. Each light shall be enclosed in an ABS case. Each light head shall be removable and have a retractable wire that can be extended a minimum of 10 feet to allow maintenance personnel to relocate and direct the light as needed. Each light shall have an on/off switch.

PERIMETER LIGHTS

There shall be six (6) underbody perimeter lights furnished and installed. One each side under the chassis cab steps, one under each side of the front of the body, and two under the rear step to illuminate the ground around the truck. Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activate automatically when the exit doors are open. All other ground area lighting shall be switchable. The lights shall be manufactured by Trucklite and be model # 40003.

EXTINGUISHER

One (1) 2.5 lb ABC Extinguisher shall be supplied with the apparatus.

BATTERY CHARGER RECEPTACLE

A 12-volt, 15-amp receptacle plug shall be installed and wired to the vehicle batteries to allow the central station battery charger to maintain battery charge. The plug for the receptacle shall be shipped loose.

SIREN

One (1) Whelen electronic siren, model # 295HFSA1 shall be furnished and installed. It shall be 100 watts and feature wail, yelp, phaser, air horn and manual wail. The microphone shall have noise canceling circuitry and Public Address override. The siren and hard wired microphone shall be installed with-in reach of the driver and officer unless otherwise directed by the fire department.

SIREN SPEAKER

There shall be a 100 watt siren speaker furnished and installed. It shall be a Cast Products model specially contoured for the International front bumper SAD/P4307.

There shall be one (1) speaker installed in the front bumper, mounted on the left side.

AIR HORNS

There shall be two (2) chrome plated air horns furnished and installed on the vehicle. They shall be manufactured by Grover and be the Stuttertone model # 1510.

The air horns shall be mounted on the chassis hood.

Build Specifications

05183-001 Onaway, MI

The air horns shall be actuated by one (1) foot switch on the driver's side of the chassis cab.

PRESSURE PROTECTION VALVE

There shall be a pressure protection valve to prevent the use of air horns or other air operated accessories when the system air pressure drops below 85 psi.

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided. They shall be visible from each seating position.

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

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

VEHICLE INFORMATION LABEL

There shall be a travel clearance warning label located in the chassis cab. The travel clearance warning label to be located in easy view of the driver. The travel clearance warning label to include the following information:

1. Overall travel clearance height in feet and inches.
2. Overall travel clearance length in feet and inches.
3. Overall travel clearance width in feet and inches.

MUD FLAPS

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

WHEEL COVERS

There shall be chrome plated lug nut covers and hub caps furnished and installed on the front and rear wheels. There will also be a chrome Baby Moon hub cover for the rear wheels.

MIDSHIP PUMP

Build Specifications

05183-001 Onaway, MI

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

Impeller shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

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

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

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

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

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

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

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

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

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

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

Build Specifications

05183-001 Onaway, MI

MASTER DRAIN VALVE

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

PUMP SEALS

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

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring loaded guard lever that locks in "Road" or "Pump" mode.

To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

PRIMING SYSTEM

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

PRIMER CONTROL

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

STEAMER INLETS

There shall be two (2) 6" inlets furnished, one on either side of the pump. The inlets shall not protrude less than 2" away from the side panels and shall each have 6" NST threads and a removable strainer

Build Specifications

05183-001 Onaway, MI

DEALER STEAMER CAPS PROVIDED

The dealer shall provide the caps for the steamer inlets of the apparatus.

STAINLESS STEEL PLUMBING

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

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

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

2 1/2" LEFT SIDE SUCTION

There shall be one (1) 2 1/2" gated suction inlet installed on the apparatus. Each intake valve shall be equipped with a 3/4" bleeder.

The suction shall be plumbed with a 2 1/2" Akron Brass 8000 series ball valve.

The suction shall be controlled from the top operator's panel.

The side suction shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

The suction shall terminate with a heavily chrome plated brass 2 1/2" NST swivel female adapter with screen. In addition, a 2 1/2" NST male plug shall be included secured by a chain or cable to the inlet termination location.

2 1/2" RIGHT SIDE DISCHARGE

There shall be one (1) 2 1/2" gated discharge installed on the right side of the apparatus.

The discharge shall utilize an Akron Brass 2 1/2" 8000 series valve.

Build Specifications

05183-001 Onaway, MI

The discharge shall be controlled from the top operator's panel.

The discharge shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

The discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

A No Shok 2 1/2" liquid filled gauge shall be supplied for discharge pressure reading.

2 1/2" LEFT SIDE DISCHARGE

There shall be one (1) 2 1/2" gated discharge installed on the left side of the apparatus.

The discharge shall utilize an Akron Brass 2 1/2" 8000 series valve.

The discharge shall be controlled from the top operator's panel.

The discharge shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

The discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

A No Shok 2 1/2" liquid filled gauge shall be supplied for discharge pressure reading.

MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus.

The gated discharge outlet furnished shall utilize an Akron Brass 3" 8000 series valve. In addition, the valve shall be a slow closing type.

The discharge shall be controlled from the top operator's panel.

The discharge shall be plumbed with 3" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

The discharge shall terminate with a 3" NST adapter and a 3" NST female swivel by 5" Storz cast aluminum 30 degree elbow. In addition, a 5" Storz cap shall be included, secured by a chain or cable to the outlet termination location.

A No Shok 2 1/2" liquid filled gauge shall be supplied for discharge pressure reading.

Build Specifications

05183-001 Onaway, MI

2 1/2" RIGHT REAR DISCHARGE

There shall be one (1) 2 1/2" gated discharge installed in the rear of the apparatus, on the right side of the truck.

The discharge shall utilize an Akron Brass 2 1/2" 8000 series valve.

The discharge shall be controlled from the top operator's panel.

The discharge shall be plumbed with 2 1/2" Class 1 high pressure vapor hose and stainless steel couplings and/or stainless steel piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

The discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

A No Shok 2 1/2" liquid filled gauge shall be supplied for discharge pressure reading.

DELUGE PLUMBING

There shall be one (1) deluge waterway installed on the apparatus.

The gated discharge outlet furnished shall utilize an Akron Brass 3" 8000 series valve. In addition, the valve shall be a slow closing type.

The discharge shall be controlled from the top operator's panel.

The deluge shall be plumbed with 3" piping that terminates 3" above the top of the pump compartment unless otherwise specified or required by a specific deck gun selection as noted. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway system if required.

The monitor pipe will be capped with a stainless steel cap to allow for future installation of deck gun.

A No Shok 2 1/2" liquid filled gauge shall be supplied for discharge pressure reading.

The deluge pipe shall be located up through the pump compartment, centered from left to right.

DOUBLE STACK CROSSLAYS

The crosslay hose beds shall be located in the upper portion of the pump compartment. The crosslay shall be constructed with a fifteen (15) inch approximate depth for laying a double stack of each hose size specified below. The crosslay area shall be located at the front of side control module apparatus. The crosslay area shall span the entire width of the pump module apparatus. Slotted aluminum flooring shall be provided for hose area drainage. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the crosslay opening. Chicksan swivels shall be installed just below the floor of

Build Specifications

05183-001 Onaway, MI

each crosslay bed just high enough for hose couplings to be accessed and tightened on to chucks. Chucks shall swing from left to right to allow attached hose to be deployed from either side.

Two (2) crosslays shall be provided for up to 200 feet of 1 3/4" hose.

Each discharge shall utilize an Akron Brass 2" 8000 series valve.

Each discharge shall be controlled from the top operator's panel.

Each discharge shall be plumbed with 2" Class 1 high pressure vapor hose and stainless steel couplings and/or stainless steel piping. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway system.

The discharge shall terminate with a brass 1 1/2" NST chuck swivel. This discharge is intended to be pre-connected to hose, so no cap shall be provided.

A No Shock 2 1/2" liquid filled gauge shall be supplied for discharge pressure reading.

HOSE BED SPOTLIGHT

There shall be one flood light furnished and installed at the front of the body to illuminate the crosslay hose bed. It shall be 6" in diameter and be 50 watts. The light shall be manufactured by Unity.

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA Pamphlet 1901, latest revision and shall be tested to those standards when the pump is being certified. One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Schedule 40 Poly-Vinyl Chloride piping may be used to complete the connection from the tank to pump valve to the water tank.

One (1) Akron Brass 3" valve shall be installed.
The valve shall be controlled from the top operator's panel.

TANK TO PUMP CHECK VALVE

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

TANK FILL LINE

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

One (1) Akron Brass 1 1/2" valve shall be installed.

Build Specifications

05183-001 Onaway, MI

The valve shall be controlled from the top operator's panel.

PUMP COMPARTMENT

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

The structural framework of the pump compartment shall be self-supportive and independent of the apparatus body. The pump compartment module mounting system shall be described below. The pump module shall be approximately 72" in width as measured laterally across the apparatus and approximately 75" in height. The width of the apparatus as measured longitudinally (measured within the wheelbase dimension of the apparatus) shall be specified in the remainder of the specifications.

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

RUNNING BOARDS

The running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails. The running boards shall be independent of the apparatus body and shall be tied only to the pump compartment structure, thereby eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive shall be applied to the top surface of the running board framework to provide a suitable stepping surface.

EMBOSSSED TREAD BRITE OVERLAY

The left side running board shall have an embossed aluminum tread brite overlay installed. The stepping area shall be as large as possible, overlapping the perimeter of the structural running board framework. The embossed tread brite material shall meet the latest NFPA abrasiveness criteria for materials utilized in stepping and/or standing areas.

EMBOSSSED TREAD BRITE OVERLAY

The right side running board shall have a embossed aluminum tread brite overlay installed. The stepping area shall be as large as possible, overlapping the perimeter of the structural running board framework. The embossed tread brite material shall meet the latest NFPA abrasiveness criteria for materials utilized in stepping and/or standing areas.

TORSION PUMP MODULE MOUNTING SYSTEM

Build Specifications

05183-001 Onaway, MI

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails with vibration and torsion isolator assemblies. The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing. There shall be a 1/4” thick UHMW polymer bearing washer between the body structure and each torsion mount. This washer shall provide dissimilar metals contact between the body structure and each mount. The UHMW bearing washer shall also act as a wear pad due to its low wear material properties.

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

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures.

OPERATORS PANEL

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

There shall be three (3) Weldon 2025 lights furnished under a light shield for illumination of the pump operator's panel. There shall be a directional light on each side of the side pump panel to illuminate the plumbing components.

The tubular structure shall be overlaid on each side of the pump compartment underneath the removable access panels and each shall be made of brushed stainless steel.

PUMP COMPARTMENT SERVICE ACCESS

The front portion of the pump compartment structure (directly behind the chassis cab) shall not be overlaid to provide an opening for access to the midship fire pump.

The structural framework of the pump compartment shall be self-supportive and independent of the apparatus body. The pump module shall be approximately 74" in width as measured laterally across the apparatus and approximately 70" in height. The width of the apparatus as measured longitudinally

Build Specifications

05183-001 Onaway, MI

(measured within the wheelbase dimension of the apparatus) shall be specified in the remainder of the specifications.

The width of the pump compartment (front to back) shall be 44".

APPARATUS LABELING

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

ALUMINUM WALKWAY WITH EMBOSSED TREAD BRITE STEPS

The walkway shall be located between the cab and pumphouse where flex joints shall be provided between the walkway and pump compartment as well as between walkway and the chassis cab. These flex joints shall be required to reduce the negative effects that chassis frame rail twist can induce into structural components.

The walkway shall be constructed of structural aluminum tubing to provide a framework for stepping and standing areas.

Each side of the walkway shall have an intermediate step which facilitates access to the walkway standing surface from the running board level. The surface of the walkway shall be constructed of an aggressive aluminum grip strut extrusion. The intermediate steps and running board areas shall be overlaid with embossed aluminum tread brite. The tread brite installed at the running board level shall overlap the surface of the supportive tubular framework, extending to the perimeter of the structure. Each surface shall be 'slip-resistant' compliant with the latest NFPA recommendations for stepping and standing surfaces. The distance between steps shall be approximately 11".

The walkway area immediately in front of the pump compartment shall be 24" in width. This pump operator's area shall be illuminated with two (2) lights mounted on the front face of the pump compartment. The lights shall be activated on and off with the panel lights.

18" HANDRAILS

Two (2) 18" handrails shall be mounted on the pump compartment (one each side) near the walkway steps to facilitate access up to the operator's panel area.

BLACK LAMINOL CONTROL PANEL

The surface of the operator's control and gauge panel shall be manufactured from heavy duty non-glare black "Laminol" aluminum, which is capable of withstanding the effects of extreme weather and temperature.

Build Specifications

05183-001 Onaway, MI

BRUSHED STAINLESS STEEL SIDE PANELS

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and each shall be made of brushed stainless steel.

There shall be two (2) side pump panels on the right side of the pump compartment, one upper panel and one lower panel. The left, upper side panel shall be the pump operator's panel. Each upper panel shall be accessible by a quick-release type latch, closing against a door seal. Each lower panel shall be easily removed for a large access to the pump for service. All panels shall be manufactured from heavy duty brushed stainless steel, capable of withstanding the effects of extreme weather and temperature.

TESTING PORTS

There shall be a pressure and vacuum test gauge adapter with chrome plated plugs furnished and installed on the pump operator's panel.

PRESSURE GOVERNOR, ENGINE INFORMATION AND MASTER GAUGE SYSTEM

A Crimson pressure governor, engine information display and master gauge intake and pressure display system shall be provided.

The pressure governor control system shall have two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between pressure and RPM modes. When the pump engaged interlock signal is recognized an OK TO PUMP indicator will light to indicate throttle ready and the governor shall be in pressure mode with the engine RPM set to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall be waterproof and have lights to indicate PSI mode, RPM mode, and OK TO PUMP.

A means of monitoring chassis engine information shall be furnished and installed on the pump panel of the apparatus. The information system shall provide the pump operator with Engine RPM, Oil Pressure, Engine Temperature, and Electrical System Voltage. This unit shall also contain all required engine audible alarms including the low voltage alarm.

A means of monitoring master intake and master discharge pressure shall be furnished and installed on the pump panel of the apparatus. They shall be capable of monitoring the master intake vacuum or pressure from -30 to 400 psi and the master discharge pressure from -30 to 400 psi.

SUCTION RELIEF VALVE

A suction relief valve with a range of pressure adjustment from 75 to 250 PSI shall be furnished, and installed inside pump compartment piped to the suction side of the pump. The valve shall be preset at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will

Build Specifications

05183-001 Onaway, MI

be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere via the unloader pipe and shall dump on the opposite side of the pump operator. The valve shall come with 2 1/2" male NPT threads that can be capped if the relief valve fails in the open position. For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

HEAT EXCHANGER

There shall be a supplementary heat exchanger cooling system furnished and installed for use of water from the discharge side of the fire pump through the engine compartment, without intermixing, for absorption of excess heat. The heat exchanger shall be adequate in size to maintain the temperature of the coolant in the pump drive engine not in excess of the engine manufacturer's temperature rating under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing. A manual shut-off valve shall be supplied at the pump operator's position.

EXTRUDED ALUMINUM BODY CONSTRUCTION

The complete apparatus body shall be constructed of a combination of structural tubing and formed sheetmetal. These components shall be welded together utilizing an A.W.S. Certified welding procedure. This process shall ensure the quality of structural stability of the apparatus body.

Aluminum tubular extrusions with a minimal wall thickness of 1/8 inch shall be used in the construction of the structural framework. These extrusions shall be as thick as 1/4 inch in strategic locations for added body strength. Both 6061 T-6 and 6063 T-52 grade aluminum extrusions shall be used in the construction of the framework. The tubular construction shall form a framework which provides the structural integrity for the entire body module. Common sizes extrusions used for construction are 2-1/2" x 2-1/2" and 2-1/2" x 1".

Sheet metal Panels complete the structure by forming the compartmentation specified. Wherever this sheet metal serves as a load-bearing component, it shall be reinforced with structural tubular supports to ensure sound construction for lasting service. Body compartment floors shall be 'sweep-out' in design to aid in regular cleaning maintenance of the apparatus. In most areas, 1/8" 3003 sheeting is used, but may be substituted by 3/16" or 1/4" sheet if necessary in extreme load bearing applications.

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by a sufficient corrosion and electrolysis inhibitor. Bodies which utilize "L" style brackets bolted to the chassis frame shall not be acceptable. Bodies which utilize a design that requires the compartments to be bolted to a separate subframe shall not be acceptable.

The interior of the compartments shall have a common wall construction. This will maximize the useable space by utilizing the exterior body overlays as interior compartment enclosures.

REAR TAILBOARD

Build Specifications

05183-001 Onaway, MI

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body. The tailboard shall be an independent assembly welded to the rear body structural framing to provide body protection and a solid rear stepping platform. The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

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

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

The rear tailboard shall be approximately thirteen and one-half (13.5) inches deep and shall incorporate an embossed aluminum tread brite overlay. The stepping area shall span the width of the apparatus, overlapping the perimeter of the structural tailboard framework. The embossed tread brite material shall meet the latest NFPA abrasiveness criteria for materials utilized in stepping and/or standing areas.

FOLDING STEPS

Each surface of the folding step shall have grip material with a minimum of 42 sq. inches in size. Each step shall be capable of sustaining a 500 lb. static load. The step shall be manufactured by Austin/Thomas Hardware model #PHS100. The following steps shall be installed:

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

One (1) light shall be mounted to illuminate stepping areas provided. Each light shall be a Weldon chrome shielded 12 candle power light. Each light shall be directed towards and positioned above the stepping surfaces.

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted in a best fit location above the steps to assist in climbing the steps according to NFPA 1901. There shall be chrome plated brackets with a rubber gasket installed between the body and the bracket. There shall be a 2" minimum clearance between the bracket and the body.

Three folding steps shall be installed on the left rear vertical face of the body.

One (1) light shall be mounted to illuminate stepping areas provided. Each light shall be a Weldon chrome shielded 12 candle power light. Each light shall be directed towards and positioned above the stepping surfaces.

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted in a best fit location above the steps to assist in climbing the steps according to NFPA

Build Specifications

05183-001 Onaway, MI

1901. There shall be chrome plated brackets with a rubber gasket installed between the body and the bracket. There shall be a 2" minimum clearance between the bracket and the body.

PAINT SPECIFICATIONS

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

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

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

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

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

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

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

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

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

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

Military Standard: MIL-C 83486B Coating, Urethane, aliphatic Isocyanate, for Aerospace applications.

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

The coating will meet the following test performance properties as a minimum standard.

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body, will be painted in a down draft type paint booth to reduce dust, dirt or

Build Specifications

05183-001 Onaway, MI

impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects.

NATURAL COMPARTMENT FINISH

To provide maximum reflectivity for the compartment lighting, the interior of the compartments shall have a natural aluminum finish. Absolutely no coatings will be applied on the compartment interiors.

The apparatus body shall be painted PPG 71528 Red.

GENERAL BODY DETAILS

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

FASTENERS

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

WHEEL WELLS

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

WHEEL WELL PANELS

The body panel area around the wheel well on each side of the body shall be fabricated of aluminum diamond plate.

TORSION BODY MOUNTING SYSTEM

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

Build Specifications

05183-001 Onaway, MI

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing. There shall be a ¼" thick UHMW polymer bearing washer between the body structure and each torsion mount. This washer shall provide dissimilar metals contact between the body structure and each mount. The UHMW bearing washer shall also act as a wear pad due to its low wear material properties.

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

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures.

BODY STRUCTURE WIDTH

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

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting filter shall be easily removable for cleaning and shall be treated to prevent mildew.

COMPARTMENT UNISTRUT

Vertically mounted unistrut shall be installed in ALL compartments of the apparatus body to accommodate mounting shelves, trays, and other miscellaneous equipment items.

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1": There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 33.5" wide by 69" high with a lower depth of 25.5" and an upper depth of 12.5". The door opening shall measure approximately 28" wide by 60" high. The compartment will have approximately 25 cubic feet of space.

Build Specifications

05183-001 Onaway, MI

Compartment "L2": There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 35" high with a depth of 12.5". The door opening shall measure approximately 59" wide by 26" high. The compartment will have approximately 15.5 cubic feet of space.

Compartment "L3": There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 49" wide by 69" high with an upper depth of 12.5" and the lower portion being transverse into the rear compartment. The door opening shall measure approximately 43.5" wide by 60" high. The compartment will have approximately 42.5 cubic feet of space.

Compartment "B1": There shall be one (1) compartment located at the rear of the apparatus, directly below the hose bed access area. The approximate dimensions of this compartment shall be 62" high with a depth of 33" with the sides of the compartment being open to the side compartments for maximum storage area. The compartment will have approximately 28.5 cubic feet of space.

Compartment "R1": There shall be one (1) compartment located ahead of the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 33.5" wide by 33" high with a depth of 25.5". The door opening shall measure approximately 28" wide by 24" high. The compartment shall have approximately 16 cubic feet of space.

Compartment "R2": There shall be one (1) compartment located behind the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 49" wide by 33" high. There shall be no back wall installed in this compartment, resulting in a large transverse area. The door opening shall measure approximately 43.5" wide by 24" high. The compartment shall have approximately 23.5 cubic feet of space.

FULL HEIGHT REAR CENTER COMPARTMENT

The rear center compartment of the apparatus shall be full height, as high as possible as determined by water tank height. The compartment shall have a roll-up door installed. The door opening shall be approximately 43" wide and 46" high.

DOOR CONSTRUCTION

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

ROBINSON BRAND ROLL-UP DOORS

Roll up doors shall be Robinson brand. Door slats to be of a double wall box frame extrusion. Exterior surface shall be flat, interior surface shall be concave to prevent loose equipment from jamming the door. Slats will be anodized to prevent oxidation. Slats to have inner-locking end shoes on every slat secured by a Punch-Dimple process. Slats shall have interlocking joints with a folding locking flange. Between each slat is a PVC/Vinyl inner seal to prevent any metal to metal contact.

Track to be one piece aluminum which has an attaching flange and finishing flange incorporated into its design which facilitates installation and provides a finished look to installation without additional trim or

Build Specifications

05183-001 Onaway, MI

caulking. Track to have a replaceable side seal. Side seal prevents water and dust intrusion into the compartment.

Drip rail will have a built in replaceable wiper seal. Drip rail to be made of aluminum. Roll-up door to have a 4" diameter counterbalance to assist in lifting and to eliminate the risk of accidental closing. The door shall be secured by a full width lift bar, operable by one hand even with heavy gloves. Securing method will be a positive latch device.

The compartment doors shall be left a natural satin aluminum finish.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

HOSE STORAGE

A hosebed shall be provided with a minimum of ninety (90) cubic feet of storage space. The hose bed shall have a slotted 1/4" aluminum flooring installed to allow drainage through the tank cavity to the ground below. The aluminum flooring shall be manufactured in two discrete sections to allow for easy removal and replacement for tank area access. The area shall be free of sharp edges to protect the hose when loaded or distributed.

The walls of the hosebed shall be 80" tall, measured from the bottom edge of the compartments to the top flange.

HOSE BED DIVIDER

There shall be one (1) divider installed in the hose bed. The divider shall be fabricated of 1/4" thick aluminum plate with a double sided reinforcement where it is attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner. Hose payout shall be unobstructed by the divider.

DUNNAGE AREA

A vertical bulkhead shall be installed at the front of the hosebed area, just behind the water tank fill tower, forming a storage area that is separated from the hosebed. The rear face of the bulkhead shall serve as a mounting surface for the hosebed dividers, resulting in the ability to move any hosebed divider across the entire width of the hosebed.

TANK CAPACITY

The tank shall be 1000 gallons in capacity.

TANK LEVEL GAUGE

Build Specifications

05183-001 Onaway, MI

A Fire Research Tank Vision LED water tank level indicator shall be installed on the pump operator instrument panel. The gauge shall provide the pump operator with an accurate reading of the water tank level. A beveled lens shall be incorporated into the indicator that protrudes from the module to allow viewing of the water tank level by personnel when not standing directly in front of the display.

The tank level gauge shall utilize a pressure transducer mounted on the outside of the tank for sensing water levels without the use of a probe.

POLYPRENE TANK

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

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

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

MOUNTING: The tank shall rest on the subframe cross members with an unsupported area not to exceed 530 square inches on tanks up to 40" in height. On tanks over 40" in height, an unsupported area of not more than 400 square inches must be maintained. All tanks shall be isolated from those crossmembers with a minimum of 2" x 1/4" hard rubber strips that are 60 durometer in hardness. The tank shall sit cradle mounted in the under body subframe and shall be completely removable without disturbing the body side panels. The subframe shall consist of 3" x 1 1/2" channel cross members and 3" x 1 1/2" channel which shall extend around the entire perimeter of the tank and be welded to the crossmembers. The channels will keep the tank from shifting front to back or side to side.

FILL TOWER: Fill opening shall be approximately 12" x 12". The tower will have a 1/4" thick removable polyprene screen and a polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 1/4" thick polyprene screen to prevent debris from falling into the tank. The fill tower shall have a 6" overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity. A rear secondary tank vent shall be provided to prevent entrapment of air when filling on a decline and will vent next to the overflow.

The fill tower shall be located in the left front hosebed.

Build Specifications

05183-001 Onaway, MI

SUMP: The sump will be constructed of 1/2" polyprene and be located inline with the tank suction valve. There shall be a 4" schedule 40 polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2" above the sump.

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

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

LADDER MOUNTING

Provision to mount ground ladders shall be provided above the low compartments. Ladder mounting brackets shall be heavy cast aluminum with 1/4" thick plastic wear pads to prevent wear on ladders. The ladder brackets shall be bolted to the side of the body in strut channels to eliminate the need to drill holes. A quick release latch shall be installed between two cast brackets to retain the ladders. The latch mechanism shall be a polished chrome plated quarter turn type that is capable of releasing one ladder while retaining the second ladder. Stainless steel trim shall be furnished and installed where ladders may come in contact with painted surfaces.

The ladder rack shall be located on the right side of the apparatus body.

The ladder rack shall accommodate mounting one (1) 14 foot aluminum roof ladder and one (1) 24 foot two section aluminum Duo-Safety extension ladder.

HARD SUCTION STORAGE

Two (2) hard suction hose carriers shall be provided. The carriers shall be constructed of aluminum and anodized for a durable, long lasting finish. There shall be (2) hold-downs, one at each end, which shall hold the hard suction hose on each tray.

One (1) hard suction carrier shall be located on the left side above the apparatus compartments.

One (1) hard suction carrier shall be located on the right side, above the ladder rack.

FENDERETTES

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

OVERLAY DETAILS

Diamond plate used as overlay material on the apparatus shall be bright finish, 3003-H14 and a minimum of 1/8" thick. The underside of the material shall first be coated with a 3M sealant to provide a dielectric barrier between the aluminum overlay and the stainless steel body.

Build Specifications

05183-001 Onaway, MI

After the coating has been applied, the overlay material shall be installed primarily using adhesive designed to join dissimilar metals. Stainless steel screws that have been coated with additional dielectric material and locking nuts shall then be installed in strategic areas to ensure full contact as the adhesive cures. Under no condition shall plastic or fiber washers which can cause pooling of water or "wicking" of water into screw holes be used in the installation of the aluminum tread plate overlays.

Overlay aluminum shall be installed in the following areas:

- Front compartment vertical areas on both sides, wrapping around each side.
- Rear vertical areas of the apparatus below the hosebed and above the rear step.
- Left and right horizontal areas over the side compartments.

The top of the pump compartment shall be an approved stepping surface constructed of embossed tread brite approved by the latest NFPA standards for abrasiveness.

KNURLED SST INSERT HAND RAILS

There shall be three (3) hand rails installed on the rear of the apparatus. Each hand rail shall provide approximately 42 inches of gripping area for personnel. Each hand rail shall be constructed of a knurled #3 polished stainless steel tubing to provide a positive grip. The handrails shall be spaced away from the body using chrome plated ends. Two (2) vertical hand rails shall be installed, one on each side, just below the hose bed sides. The remaining hand rail shall be installed horizontally, just below the hose bed area.

REAR TOW EYE

There shall be a rear tow eye attached to the frame rails. The location of the tow eye shall be below the rear center compartment.

The tow eye shall be manufactured of 1" plate steel that is bolted to the chassis frame rail with a minimum of 6 grade 5 bolts. The plate shall be braced to the opposite frame rail to offset forces placed at an angle to the chassis frame.

LOW-VOLTAGE ELECTRICAL SYSTEM

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

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

Build Specifications

05183-001 Onaway, MI

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

As-built electrical system drawings and a vehicle-specific reference of I/O shall be furnished in the delivery manuals. These drawings shall show the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by Crimson Fire shall be provided in the owners manual.**

LED DOT LIGHTING

There shall be five (5) lights located on the rear of the vehicle. Three (3) of the lights shall be mounted as high as possible on the rear face of the body for use as identification lamps. Two (2) lights shall be located as high and wide as possible, one each side, for use as clearance lamps. There shall be additional lights (minimum of one (1) each side of the apparatus) between the front and rear axles for identification and turn signaling as required. The lights shall be Weldon brand 9186-1500 series LED red and amber markers.

HALOGEN REAR TAIL/WARNING LIGHT CLUSTER

There shall be a rear 'quad' tail light cluster furnished and installed in a polished bezel at the rear of the apparatus, one each side. The cluster shall be manufactured by Whelen and consist of the following:

- 1 - Whelen #60 Halogen Red brake light
- 1 - Whelen #60 Halogen Clear backup light
- 1 - Whelen #60 Halogen Amber turn signal light with silhouette arrow
- 1 - 4X6 spot for the warning lamp specified below

Each tail light cluster shall be mounted on a removable panel for easy access to the electrical distribution centers at each rear corner of the apparatus body.

REAR SCENE / BACKUP LIGHTS

The scene/reverse lights shall automatically turn on when the ground lights are activated and the park brake is engaged and shut off when the ground lights are deactivated or the park brake is disengaged.

PUMP/TRANSVERSE COMPARTMENT LIGHTING

There shall be one (1) 12-volt work light installed in the pump/transverse compartment. Each light shall be activated with a switch located on each light and shall be enclosed in an ABS case. Each light head shall be removable and have a retractable wire that can be extended a minimum of 10 feet to allow maintenance personnel to relocate and direct the light as needed.

Build Specifications

05183-001 Onaway, MI

COMPARTMENT LIGHTING

There shall be one (1) light mounted in each body compartment. The light in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors. The lights shall be manufactured by Weldon and be model #2030.

UPPER LIGHTING PACKAGE

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

ZONE A: There shall be a 60" light bar with four rotators furnished. The bar shall have four (4) sections with a rotator in sections 1,2,3 and 4. One "V" shaped mirror shall be between section 1 & 2, and one "V" shaped mirror shall be between section 3 & 4. Sections 1 & 4 shall be red with sections 2 & 3 being clear. The rotators in sections 2 & 3 shall deactivate when the parking brake is set. The light bar shall be the Centurion series model #C40000N.

ZONES B&D: The side forward area shall be covered by the Zone A lighting.

ZONE C: There shall be two (2) beacons furnished and installed in the upper outer corners of the rear of the apparatus. They shall each have a halogen rotator and be model # RB6T. The lens colors shall both be red.

CAST ALUMINUM LIGHT STANCHIONS

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

LOWER HALOGEN WARNING LIGHTING

ZONE A: There shall be two (2) halogen lights, 4" high x 6" wide, mounted in the front grille area of the chassis specified. Whelen brand model 60 halogen red lights shall illuminate Zone A as defined by the latest version of NFPA 1901 pertaining to Lower Zone Warning Lighting.

ZONES B&D: There shall be six (6) halogen lights, 4" high x 6" wide, surface mounted along the sides of the apparatus. Whelen brand model 60 halogen red lights shall illuminate Zones B & D as defined by the latest version of NFPA 1901 pertaining to Lower Zone Warning Lighting.

ZONE C: There shall be two (2) halogen lights, 4" high x 6" wide, mounted on the rear of the apparatus body specified. Whelen brand model 60 halogen red lights shall illuminate Zone C as defined by the latest version of NFPA 1901 pertaining to Lower Zone Warning Lighting.

Build Specifications

05183-001 Onaway, MI

HOSEBED SPOTLIGHT

There shall be one rear flood light furnished and installed at the rear of the apparatus. It shall be 6" in diameter and be 50 watts. The light shall be manufactured by Unity.

REFLECTIVE STRIPING

There shall be a 4" inch reflective "Scotch-lite" stripe applied to the outside perimeter of the chassis and apparatus.

The reflective striping shall be applied around the perimeter of the apparatus in a straight line.

The reflective striping shall be white in color.

DOOR LETTERING

The lettering shall be white reflective. Lettering shall be applied as directed by the fire department with a maximum of 60 letters up to 4" in height.

EQUIPMENT

The following equipment shall be supplied by the Apparatus Manufacturer:

ALUMINUM GROUND LADDERS

The following equipment shall be supplied by the Apparatus Manufacturer:

- One (1) Duo-Safety 24' two (2) section aluminum extension ladder, model 900A
- One (1) Duo-Safety 14' aluminum roof ladder with folding hooks, model 775A
- One (1) Duo-Safety 10' folding aluminum attic ladder, model 585A

DEALER PROVIDED OPTIONS:

DELIVERY

The completed Apparatus, to insure proper break-in of all components while still under warranty, shall be delivered under it's own power, to the Fire Department.

The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

TRAINING

Build Specifications

05183-001 Onaway, MI

Crimson Fire, shall have a qualified delivery engineer instruct the Fire Department Personnel/Motor Pool in the proper operation, care and maintenance of the equipment delivered.

The firefighter/operator training/motor pool shall be conducted after the vehicle is delivered and accepted by the department, at a time mutually agreed on by both the " Department " and " Crimson ", for one (1) day of training.

PVC SUCTION HOSE

Two (2) 6" x 10' sections of PVC flexible light weight suction hose. The ends shall be light weight couplings with long handle female and rocker lug male with NST threads.

Kocheck: 2P601