

# City of Walker Fire Department

## **GENERAL SPECIFICATIONS**

Summit Manufacturing Inc. 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).

Summit Manufacturing Inc. has been in operation since 1957. Summit Manufacturing Inc. Maintains a complete, on-site parts department, and ships spare parts orders the same day they are received.

The apparatus will be manufactured at 11 Sperti Drive, Edgewood Kentucky.

The chassis will be manufactured by IHC Corporation.

Zahnen Truck Service & Equipment is the authorized dealership for Summit Manufacturing Inc. in 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" maintains a full service center facility in Belding MI, with a minimum of one (1) mobile service unit with 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 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.

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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 and drive axle lubrication fluid. (when provided the pump transmission lubrication fluid, pump primer fluid and hydraulic generator 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 maximum 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.

- (a) From a standing start the vehicle will attain a true speed of 35 mph within 25 seconds.
- (b) 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.
- (c) The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.
- (d) 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

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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.

## **BID DRAWINGS**

Large "D" size drawings of the units proposed, have been furnished with this proposal as specified.

## **APPROVAL DRAWINGS**

With-in sixty (60) calendar days of award, a pre-construction conference shall be held.

## **APPARATUS UNDERWRITERS LABORATORIES CERTIFICATION**

The following Apparatus shall comply with all NFPA 1901 applicable regulations in effect as of the bid due date.

All UL testing performed shall have the certification delivered to the customer with the completed apparatus.

All other testing performed shall have the certification delivered to the customer with the completed apparatus.

## **SUPPLIED INFORMATION**

Summit Manufacturing Inc. shall supply copies of the following manuals with the manufactured apparatus.

- A) Two (2) copies of the owners manual complete with operation and maintenance manuals of the apparatus body.
- B) Two (2) copies of the as built wiring diagrams.
- C) One (1) copy of the chassis, engine and transmission manuals.
- D) Two (2) copies of the fire pump manuals.

The manuals shall include, but not be limited to: all component warranties, manuals and information for supplied products and whatever other pertinent information Summit can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, Summit 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.

**Summit shall also supply a manufacturer's record of apparatus construction de-tails, including the following information:**

Owner name and address;

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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;

## **LIABILITY INSURANCE COVERAGE**

Summit Manufacturing Inc., certificate of liability insurance coverage is included in this proposal, in the minimum required amount of \$5 million dollars.

## **BID SECURITY**

A Bid Bond in the amount of ten (10%) of the bid price is provided and enclosed.

## **PERFORMANCE BOND**

A one hundred (100%) Performance Bond shall be supplied within thirty (30) days of bid award. Contract signatures of both buyer and Summit Manufacturing, Inc shall construe awarding of the bid.

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## **DELIVERY**

Delivery of the vehicle shall be provided within 180 to 250 calendar days from date of award of bid.

## **CHASSIS WARRANTIES**

The Chassis warranty shall be provided by the IHC Corporation.

## **APPARATUS WARRANTIES**

Body and component warranties have a copy supplied in section 7 of the bid packet.

## **OVERALL MEASUREMENTS OF THE COMPLETED APPARATUS**

Wheelbase: 246"

Height: 121"

Length: 383"

## **2004 INTERNATIONAL 7600 6x4 2-DOOR**

Please see attach chassis specifications.

## **FRONT BUMPER EXTENSION**

The front bumper shall be extended 6" to allow for the installation of the motor driven siren.

There shall be a gravelshield installed between the front of the grill and the bumper.

## **EXHAUST SYSTEM**

The exhaust system shall be modified to accept an " **EXHAUSTOMATIC** " extraction system.

The exhaust system shall terminate ahead of the rear wheels at a 45 degree angle. The top of the tailpipe shall be a minimum of 4" lower than the bottom side of the body and flush with the body side.

The 45 degree angle shall be a minimum of 8" in length.

The tail pipe shall terminate a minimum of 12" forward of the rear tire.

## **STEP OVERLAYS**

The original steps into the truck shall be removed; new continuous running aluminum tread brite steps shall be installed on both sides.

The streetside fuel tank shall be enclosed with aluminum tread brite. The enclosure shall incorporate the OEM tank step recess and fuel filler. All seams shall be continuously welded.

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The step shall be so arranged that a fireperson wearing heavy boots and turnout gear can easily gain access to all cab doors.

The steps shall provide anti-slip protection and shall be constructed of a raised punch aluminum diamond tread plate to facilitate draining of accidentally spilled fuel.

## **ROLL OUT BATTERY TRAY**

The truck batteries are to be locate behind the curbside step and shall be mounted on a ball bearing slide tray so as to provide easy access without having to remove the step.

## **PAINTED TOW EYES**

There shall be two (2) tow eyes painted to match the body of structural steel reinforcement attach-ed to the frame rails of the chassis. They shall be mounted at the rear center of the apparatus and capable to with stand the requirements of the department.

## **CAB BINDER HOLDER**

Between the two (2) front seats, a binder holder shall be constructed of .125" aluminum with black spray coating.

The binder holder shall be 20" wide x approximately 28" tall.

The binder holder shall be floor/wall mounted and have approximately six (6) angled slots. The slots shall be 3" wide (forward to rearward) with the bottom slot being 4" wide (forward to rearward) with each slot being 6" deep.

The top of the binder holder shall have tray that shall be 2" deep.

## **PAINTED WHEELS**

The wheels on chassis shall be painted white from the OEM.

## **BOILER PLATE**

A permanently engraved plate shall be installed in the cab specifying the quantity and type of fluids used in the apparatus.

## **FUEL TYPE PLATE**

A permanently engraved plate shall be installed on or near the fuel fill stating " Diesel Fuel " only.

## **SEATING LABEL**

There shall be a label located in the cab or in view of the driver, stating maximum seating capacity.

## **VEHICLE HEIGHT LABEL**

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There shall be a label located in the cab or in view of the driver, stating the overall height of the vehicle.

## **SEAT BELT WARNING LABEL**

There shall be a label located at all seating areas, warning personnel that death or serious injury could result from not wearing seat belts while the vehicle is in motion.

## **RIDING ON STEP WARNING LABEL**

There shall be a label located at the rear stepping surface, stating "Warning: Death or serious injury may result from riding on any stepping surface when the vehicle is in motion.

## **MUD FLAPS**

There shall be a set of front antispray black mud flaps shall be installed on the front wheel well.

There shall be a set of rear antispray black mud flaps shall be installed on the rear wheel well.

## **WHEEL CHOCKS**

There shall be two (2)sets of Zico model SAC-44 wheel chocks with a horizontal hanging brackets mounted under the compartments at the forward portion, one (1) set each side.

## **WETSIDESTAINLESS STEEL 304L SUB-FRAME**

There shall be one 3"x3"x3"x3/16" angle welded to each corner of the body cross member for cradle mounting of the tank. The angles shall be mounted vertically in each corner and wrap around each corner of the tank to prevent side to side and front to rear movement of the tank. The tank shall be isolated from the corner angles with 1/4" x 3" wide hard rubber strips.

The a structural frame work shall be constructed using a series of crossmembers spaced 18" on center. Tank crossmembers shall butt into full length longitudinal tank support rails consisting of structural stainless steel construction.

Each cross member, including the full length longitudinal beams shall create a solid foundation for the tank to rest on. The frame rail frame work shall be isolated from the steel chas-sis frame rails with a 1/8" X 3" poly strip.

The complete subframe shall be constructed from 304L stainless steel. The complete apparatus sub-frame and all support assemblies shall be all welded construction electrically welded both sid-es at each joint completely free from nuts, bolts and other fasteners.

All fasteners used in securing components of or to the body shall be of stainless steel. Aluminum or mild steel fasteners are not acceptable. Stainless steel button head screws will only accepted.

All dissimilar metals shall have a barrier material between them to prevent electrolysis.

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## **STAINLESS STEEL 304L BODY AND DOORS**

The completed apparatus compartmentation and related equipment, must be removable in their completed entirety and accompany the water tank when the water tank is removed.

The body must contour around the rear wheels in such a fashion to give the body a pleasing appearance. This shall consist of a full length "skirt" that shall extend from the front of the tank to the end of the rear platform.

The rear body panel above the tail board shall be furnished or clad with tread brite aluminum.

The wheel wells shall have full poly wheel well liners and polished stainless steel fenderettes installed and allow enough room for tire chains.

Compartments shall be adequately vented and drained with baffles installed to prevent water from entering from outside. Compartment floors shall be of sweepout design formed from smooth stainless steel sheet. The interior of the compartments shall be of sweep out construction design. Compartments employing running boards or tailboards for floors are not acceptable.

There shall be two (2) storage compartments provided on the apparatus. One (1) compartment located each side in front of the rear wheels. Each compartment will have approximate dimensions of 26" deep x 32" tall x 56" wide.

Compartments shall be constructed from 14 gauge 304L stainless steel and must not have any weld markings or stitching showing. They must be fully welded on the seams to assure a nice fit and to keep elements from entering. Each compartment shall mount on structural underbody bracing compartment side walls shall be securely fastened to a structural sub-frame members secured to the chassis frame.

The compartment interiors shall be unpainted.

Compartment light brackets shall be welded to compartment tops.

The front compartment partitions shall be overlaid with a treadbrite aluminum to provide protection from scratching due to stepping on or road debris

On all items that are bolted or fastened onto a painted surface there will be isolation strips installed between mating surfaces. This is to prevent problems associated with dissimilar metals and cutting the painted surface by sharp edge of installed items.

The doors shall be constructed from 304L stainless steel using a boxed pan configuration. Pans shall have drain provisions which also allows for ventilation. Doors, including pans, shall be approximately 1-3/4" thick, which allows maximum storage space.

The doors shall be securely attached to the apparatus body with full length stainless steel piano type hinges. The door shall be mounted to the body using stainless steel nuts and bolts. Absolutely no self-tapping screws or pop rivets shall be acceptable on the doors, hinges or slam latch assemblies.

Polished stainless steel bend D-ring style twist lock door latches shall be installed on the inner

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door pan. The bent D-ring shall allow easy opening of the compartment door, even with gloves on.

Gas charged struts closures shall be installed for door closures. They will assist in opening and closing on all vertically hinged doors by holding the door in a positive open or closed position.

The latching system shall be the Eberhard 206 style.

## **HARD SUCTION STORAGE**

There shall be two (2) stainless steel hard suction hose compartments integrated in to the body side. One (1) compartment shall be located above the rear wheels, on each side of the unit. The compartments shall painted to match the body and have a polished treadplate vertically hinged door at the rear. The doors shall have a push button type latch.

The rear tail board shall be securely mounted to body super structure. It shall be a minimum of 16" deep and approximately 24" from ground to the tail board as specified in NFPA 1901-2003 edition sections 15.7.1-15.7.3 the tail board shall be designed to sustain a minimum static load of 500lbs with out deformation and shall be punch raised to provide skid resistance when stepping. It shall adequately support the stepping and standing of a fire person in full turn out gear but not be used to transport firefighters.

## **SHELF TRACKS**

The streetside and curbside compartments shall have stainless steel tracks mounted for adjustable shelving.

## **ADJUSTABLE SHELVES**

The heights of all shelves shall be easily adjustable by using stainless steel unistrut, welded permanently to the side bay walls, along with appropriate fasteners. The unistrut is to be continuous from the top to the bottom portion of the compartment.

All shelves shall be capable of supporting a minimum weight of three hundred fifty (350) pounds.

All shelves are to be of 3/16" smooth aluminum with press formed flanges of 2" on all four sides and have D.A. sanded finish.

Shelf dimensions shall vary to accommodate the specified compartment for which it is to be mounted.

There shall be one (1) adjustable shelf mounted on unistrut in the curbside compartment.

There shall be one (1) adjustable shelf mounted on unistrut in the streetside compartment.

## **ROLL-OUT TRAYS**

Two (2) 2" deep heavy-duty 3/16" aluminum floor mounted rollout trays with Grant slides and holding catch shall be installed in the compartments. The trays shall be full compartment depth and as wide as feasible and still clear the compartment door when rolling out.

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One (1) front streetside.

One (1) front curbside.

## **FIRE PUMP**

The pump shall be a Waterous CSU, single stage 1500 GPM of simultaneous construction and shall comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association #1901, latest edition, and shall have a rated capacity of 1500 GPM.

The pump shall be free from objectionable pulsation and vibration under all normal operating conditions.

Pump body shall be close grained gray iron and must horizontally split in two sections for easy removal of the entire impeller shaft assembly, and designed for complete servicing from the bottom of the truck without disturbing, the setting of the pump in the chassis or apparatus piping which is connected to the pump. Pump body halves shall be bolted together on a single horizontal face to minimize leakage and facilitate reassembly.

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

Impeller shall be bronze with double suction inlets, accurately balanced (mechanically & hydraulically), of mixed flow design with reverse flow, labyrinth type, wear rings the resist water bypass and loss of efficiency due to wear. The impeller shall have a 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.

Wear rings to be bronze, and shall be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Impeller shaft shall be stainless steel, accurately ground to size, and supported at each end by oil or grease lubricated anti-friction bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable stuffing boxes, finger rings, and oil seals. The impeller shaft shall be of two piece construction separable between the pump and the pump transmission to allow true separation of the transmission from the pump without the disassembly of either component. No sleeve type bearings shall be used.

Mechanical seals shall be self adjusting , spring loaded mechanical to aid in eliminating leakage and routine maintenance.

Pump transmission shall be rigidly attached to the pump body assembly and be of the latest design incorporating a high strength, involute tooth Hy-Vo chain drive capable of operating at high speeds and provide smooth, quiet transfer of power. The shift engagement shall be accomplished by a free sliding, collar and shall incorporate an internal locking mechanism to insure collar will be maintained in ROAD or PUMP position.

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The suction fittings shall include removable, die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

The entire pump shall be manufactured and tested at the pump manufacturers factory. Two (2) shop manuals covering the pump, pump transmission, and necessary working, parts of the pump shall be provided with the completed apparatus.

The pump shift shall be air operated and located in the open space in the upper right portion of the dash. The in cab control switch shall have a spring loaded guard to prevent accidental shifting. There shall be lights indicating OK TO PUMP and WARNING DO NOT OPEN THROTTLE UNLESS LIGHT IS ON.

The pump shall be equipped with a manual pump shift override to be used in case of failure of Air Shift unit. All handles shall be clearly marked " MANUAL PUMP OVERRIDE"

The pump will meet and perform the following test and certification.

100% of rated capacity @ 150# net pump pressure  
100% of rated capacity @ 165# net pump pressure  
70% of rated capacity @ 200# net pump pressure  
50% of rated capacity @ 250# net pump pressure

Three warning lights shall be provided to alert the operator when the drive unit has fully shifted from road to pump position. One to be located in the cab and the other to be located on the pump panel adjacent to the throttle, both with appropriate warning plates.

The priming pump shall be positive displacement vane type, oilless type, electrical drive, and conform to the standards outlined in N.F.P.A. Pamphlet No. 1901. One (1) priming control shall both open the priming valve and start the priming motor.

Pump shall be equipped with a master push / pull drain valve which will discharge below the truck away from the pump house. Valve shall be operated from pump panel.

Extra heavy duty pump mounting brackets shall be furnished. There shall be bolted to the frame rails in such a position to perfectly align the pump so that the angular velocity of the drive line joints will be the same on each end of the drive shaft. This will assure full capacity performance with a minimum of vibration. Mounting hardware shall utilize grade 8 bolts.

As an automatic transmission is furnished, a lock-up assembly shall be installed to prevent the transmission from shifting gears while in the pumping mode.

## **AUXILIARY COOLER**

An auxiliary cooler/heat exchanger shall be installed in the engine compartment between the engine and the chassis radiator. The cooler shall permit the use of water from the pump for cooling of water circulating through the engine cooling system. This cooling shall be done without mixing engine and pump water. A shutoff valve shall be provided on the pump operators panel.

## **PLUMBING**

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All pump plumbing shall be heavy duty galvanized schedule 40 pipe. High pressure flex hose shall be used as required. Sweep type elbows shall be used where applicable to reduce friction loss.

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

Pump and plumbing shall meet the standards of the latest NFPA requirements.

## **DISCHARGE VALVES**

The 2-1/2" side discharge valves shall be an Waterous Rack and Sector with chrome push/pull "T" handle controls.

The 4" master discharge valve shall be an Akron 8000 series turn crank control with an 8" hand wheel.

Two (2) crosslays shall have a 2" Akron 8000 series valves, with chrome push/pull "T" handles controls.

One (1) crosslay shall have a 2 1/2" Akron 8000 series valves, with chrome push/pull "T" handles controls.

## **STEAMER INLETS**

A 6" steamer inlet shall be provided on the streetside and curbside. They shall have NST threads and terminate with a screen.

## **SUCTION INLET**

A 2-1/2" suction inlet shall be provided on the streetside pump panel, rearward of the steamer inlet. The suction inlet shall be a 1/4 turn swing type control on top of the Akron 8000 series valve, outside of the pump panel. The suction inlet shall be equipped with a .750 1/4 turn drain valve. Drain shall discharge below the running board.

## **TANK TO PUMP**

One (1) tank to pump valve shall be an Akron 8000 series 3", installed between the water tank and the pump, with a chrome push/pull "T" handle control.

## **TANK FILL**

One (1) tank fill valve shall be an Akron 8000 series 2" , shall be supplied off the discharge side of pump and be plumbed into the front head of the tank using high pressure hose, with a chrome push/pull "T" handle control.

## **STREETSIDE DISCHARGES**

Two (2) 2-1/2" discharge valves shall be provided, located on streetside pump panel. The discharges are to have male NST threads, and have a high polished chrome cap with chain.

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The discharges are to be equipped with a .750 1/4 turn drain valve. Drains shall discharge below the running board.

## **CURBSIDE DISCHARGE**

One (1) 2-1/2" discharge valve shall be provided, located on curbside pump panel. The discharge is to have male NST threads, and have a high polished chrome cap with chain. The discharge is to be equipped with a .750 1/4 turn drain valve. Drains shall discharge below the running board.

## **CURBSIDE MASTER DISCHARGE**

One (1) 4" large diameter discharge shall be provided on the curbside pump panel. The discharge is to terminate with a 4" NST x 5" Storz adapter , cap with chain. The discharge is to be equipped with a .750 1/4 turn drain valve. Drains shall discharge below the running board.

## **ELBOWS**

All 2-1/2" main pump discharges to be equipped with 45 degree chrome elbows. The master discharge is to have a 30 degree elbow.

## **CROSSLAYS**

Two (2) crosslays capable of holding 200 feet of 1.75 hose shall be installed above the pump house rearward portion. The crosslays shall be equipped with 2" x 1-1/2" chicksan swivels and 2" high pressure reinforced hose controlled at the operator's panel.

One (1) crosslay capable of holding 200 feet of 2.50 hose shall be installed above the pump house forward of the rearward crosslays. The crosslay shall be equipped with a 2 1/2" x 2-1/2" chicksan swivel and 2 1/2" high pressure reinforced hose controlled at the operator's panel.

Stainless steel flooring shall be provided for the crosslays with two (2) dividers for maintenance free service.

Each hosebed shall be capable of stowing the hose, two (2) widths wide and stowe a TFT pistol grip nozzle.

The dividers shall be space apart as follows forward to rearward. The measurements shall be inside to inside of the divider. 9" 7-1/2" / 7-1/2".

The crosslays shall have Class 1 automatic drain valves.

The crosslays shall be labeled as follows:

Forward Crosslay-2-1/2"  
Middle Crosslay-1-3/4"  
Rearward Crosslay-1-3/4"

## **PUMP HOUSE**

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The pump module shall be a self-supported structure mounted independently from the body and chassis cab. The design shall allow normal frame deflection without imposing stress on the pump module structure of side running boards. The pump module shall be constructed from a welded frame work utilizing stainless steel structural and sheet components properly braced to withstand the rigors of chassis frame flex. The pump module shall be bolted to the frame rails at four points.

There shall be an extension at the forward portion of the pump house. The extension shall be painted job color and have a hinged door to open forward to allow servicing of the fuel filter on the streetside.

There shall be a dead lay hosebed provided at the upper portion of the pump house extension.

There shall be an SCBA bottle compartment located above the pump rearward portion. The compartment shall have one (1) SCBA bottle tube on each side with a CPI door.

Aluminum nonskid tread plate running boards shall be installed along both sides of the pump house to provide access to the operators panel. Running boards shall be separate from the pump house and not be an integral part of a compartment. They shall maintain at least a 1/2 clearance from pump hose. Each step shall be rigidly braced and supported.

In addition to the running boards there shall be a pull step located under each side panel running board. The pull out steps shall each be full width by a minimum of 12" deep. The step shall have a locking device for the in/out positions.

## **PUMP PANEL**

The pump panel shall be constructed of brushed stainless steel.

The instrument panel shall be located on the left side and horizontally hinged for pump maintenance and inspection. The right side panel shall have a large inspection door installed.

The instrument panel must contain the following gauges and equipment. These are to be located according to N.F.P.A. 1901 applicable codes.

An OK to pump green light indicator shall be installed on the pump operators panel, integral with the PSG system controller.

A Class 1 Captain Pressure Governing System shall be furnished and installed on the pump panel. The PSG allows for pump pressure control and throttle control.

The PSG installation shall be wired specifically for the Cummins electronic engine.

There shall be a Class 1 ENFO III furnished and installed on the pump panel of the apparatus. The ENFO III provides the pump operator with Engine RPM, Oil Pressure, Engine Temperature, and Electrical System Voltage. This compact unit contains all required engine audible alarms including the low voltage alarm.

Each control and gauge will be clearly marked by a color coded name plate, permanently affixed to the operators panel.

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Controls for pump system will be accessible at the side mounted operators panel.

Water pressures and suction gauges will be filled with liquid silicone solution to assure visual reading to with 1% accuracy and function accurately in sub-zero temperatures.

This liquid silicone gauges eliminates the need of snubber valves.

The following instruments and controls will be supplied at the operators panel:

- One (1) 30 x 600 PSI chrome 4 - 1/2 main pressure gauge.
- One (1) -30 x 600 PSI chrome 4 - 1/2 main suction gauge
- One (1) 0 x 600 PSI chrome 2 - 1/2 individual pressure gauges for each 1 - 1/2 or larger discharge.
- One (1) Class 1 Captain PSG.
- One (1) ENFO III
- One (1 ) Class 1 LED Intelli light water level gauge.
- One (1) heat exchanger control.
- One (1) tank fill control.
- One (1) pump to tank control.
- Pump discharge controls.
- Primer control
- U.L. test plug panel.

All discharge and suction gauges are to be identified at the gauge, discharge and suction points as well as open-closed positions on swing valves with identification plates of black background and natural letters.

## **TANK LEVEL GAUGES**

Class 1 LED intelli light water level gauges shall be provided, to monitor the tank water levels. System shall utilize a four (4) light indicator that shall provide the operator with designations of full, 3/4, 1/2, 1/4. Each light will be activated when its level has been surpassed. (The sending unit for this indicator so as to be accessible for cleaning and maintenance).

An addition water level gauge shall be located at the upper rear face of the unit (center) mounted.

## **THERMIAL RELIEF VALVE**

A Waterous Overheat Protection valve shall be installed in the fire pump manifold. The relief valve shall automatically open to circulate water between the tank and the pump, when the pump water temperature exceeds 120 degrees.

A red warning light shall be provided on the pump operators panel.

The water expulsion tube for the protection valve shall be plumbed to the forward portion of the pump operators running board horizontally to expel the water outboard from under the running board.

## **PUMP COMPARTMENT LIGHTS**

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There shall be two (2) lights installed in the pump compartment to illuminate the pump house area. There shall be a switch located on the light.

## **PUMPHOUSE HEAT PAN**

An aluminum bolt on pump heat pan shall be mounted underneath the pump to provide a supplementary heat source by trapping chassis exhaust heat and holding around the pump housing during low temperature operation. Pan shall be easily removable for detachment in warmer temperatures.

## **BOOSTER TANK**

The tank shall be 4,000 gallon capacity, it will be designed to be a wet-side construction.

Tank shall be female molded, machine chopped-hand lay-up process. Built in a (2) two schedule procedure, "ultimate insurance against possible leaks, comprised of fiberglass chop strand composite and double layers of woven covering fiberglass matting, bonded together by wax free polyester resin. Also (1) final interior coating of polyester resin throughout tank to insure maintenance free water tank.

Exterior of fill tower and tank lid are coated with (10) mills of gold jelcoat, applied by spraying into female mold. Exterior of tank tub coated with (10) ten mills of white jelcoat, applied by spraying into the female mold. Laminate thickness 1/2" composite laminate, 3/8" tank lid bolting flanges, 5/16" transverse baffles,

For the ultimate in superior structural strength, with considerable weight savings. Tank tub will be composite laminate construction, using 1/4" composite core, between (2) two 1/8" laminates of F.R.P. material. The 1/2" thick composite laminate feature increases wall strength. Approximately 2-1/2" times greater than equivalent thickness of solid laminate.

Tank shall be designed with all exterior longitudinal corners having 1" radius.

Tank shall be equipped with longitudinal and traverse baffles which exceed latest NFPA Bulletin #1901 requirements. All baffles are attached to the interior of the tank tub with fiberglass chop strand, directional reinforcement fiberglass matting and wax free polyester resin, bonded both sides of connecting joint to insure maximum interior structural support. The longitudinal center baffle also supports the fully removable lid, to insure support for hose bed weight load.

Tank shall be equipped with a fully removable lid, designed to allow full access into the tank. Lid will be F.R.P. composite laminate construction. Lid is bolted in place with stainless steel bolts, with no part of the bolts making contact with the tank contents. Bolts are around full perimeter of top of tank and full length of longitudinal center baffle. Bolt pattern shall be on 4" centers around perimeter and 8" centers through longitudinal center baffle. Lid is sealed with a full perimeter close cell neoprene gasket. Lid will have (1) one access hole for liquid level indicator.

The fill tower shall be constructed of 1/2" composite laminate. It shall measure 36"x36"x12". Its location shall be to the left side and front corner. The floor of the fill tower shall be a perforated sheet (removable-type screen), to prevent small objects from falling into the tank. The fill tower shall be mounted to allow air to escape while filling.

Tank serial no.'s bonded under fill tower lid and wired to exterior lid flange.

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Tank shall be equipped with (1) 6" I.D. PVC schedule 'd .40 overflow vent pipe, piped from the fill tower to the rear of the tank, recessed at overflow exit. Overflow extending behind chassis rear wheels.

Tank shall be equipped with (1) one 3" NPT, PVC schedule 'd .80 female drain flange bonded into floor of tank sump.

The tank mounting shall be the system approved by the respective tank manufacturer.

An unlimited time after delivery warranty shall be provided with the finished unit. The warranty shall warrant 100% from defects in material and workmanship, under normal use and service.

The tank builder shall compensate the fire department \$200 per day for every day the valid warranty claim causes the customers apparatus to be out of service.

## **ALUMINUM TRIM**

The tank shall be trimmed with bright finish aluminum treadplate across the top of the sides, front and rear of the tank to provide a more pleasant appearance. Trim shall be securely fastened to the tank.

## **DIRECT TANK FILL**

There shall be one (1) 4 inch rear head wall mounted direct tank fill. It shall be plumbed inside the tank to the top. The valve shall be supported and be a 4" butterfly valve with A 5" storz fitting and cap. The valve shall be painted job color to match.

## **REAR DUMP CHUTE**

There shall be one (1) 10" square steel Newton manual operated valve provided at the rear center of the water tank. It will be installed by the use of a stainless steel bolts.

The valve shall be painted job color.

The chute shall not extend rearward past the tailboard.

There shall be a 12" flip down pan attached to the dump chute. The pan shall be fabricated out of 1/8" material painted job color and be pinnable in the upright position.

## **ELECTRICAL SYSTEM**

- 1) Solderless insulated crimp connectors shall be provided. All electrical connections that are exposed to the elements shall be of the heat shrink sealant type.
- 2) Wire nut insulation displacement and insulation piercing connections shall not be used.
- 3) All holes made in the roof shall be caulked with silicon.
- 4) All electrical components installed outside of the body shall be mounted in a manner to

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prevent moisture from accumulating in them.

5) All electrical components installed must be easily removable and with a 6" (minimum) coil of wire provided behind the component, to allow for the component to be pulled away for inspection and or service.

6) Corrosion preventative compound shall be applied to all terminal plugs, light sockets and non-waterproof connections, located outside of the body or cab.

All electrical work shall be performed by persons familiar with emergency vehicle systems.

All of the emergency electrical equipment shall be served by circuits separate and distinct from the vehicle chassis circuits. Body wiring shall be color and function coded, grease, oil and moisture resistant, routed in protected locations, neatly and securely fastened, and all apertures properly grommited for passing wiring. Solderless insulated connectors shall be provided where required.

The electrical system shall be completely controlled through a distribution center. The center shall incorporate automatic reset circuit breakers connected to relays to control each electrical circuit. Each circuit breaker and relay shall be sized to the load intended to be carried.

The 12-volt electrical system shall be controlled through a switch panel located in the cab and at a location that is easily accessible for the driver. The panel shall include switches arranged in the most convenient and practical manner that is possible.

The switch panel shall operate the relays and not carry the circuit load. The panel shall control individually all emergency warning light circuits, which shall also be controlled by warning master switch.

All compartment wiring shall run in conduit and securely fastened.

All heavy ampere carrying cables requiring terminals shall have the terminals both crimped and soldered for good electrical connections. These circuits shall include the starting charging and siren circuits.

All wiring shall be color coded two (2) wiring diagrams (schematics) shall be supplied upon delivery of the truck. The diagram shall represent the exact wiring application, not a proposed system.

The distribution center, relays, strobe power packs and all other control devices shall be located in a convenient location for service.

Body shall be equipped with all lighting as required by Federal Motor Vehicle Safety Standards.

All electrical and emergency lighting equipment shall be supplied with automatic reset circuit breakers of appropriate amperage. All circuits shall be operated through a Bosch or equal continuous duty relay to remove load from all switches.

## **BATTERY DISCONNECT SWITCH**

A Cole Hersey brand 75908 master battery disconnect switch shall be installed in a convenient

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location to the driver.

## **BATTERY LIGHT**

A green "battery on" pilot light that is visible from the driver's position shall be provided.

## **BRAKE / TURN / BACKUP LIGHTS**

The rear stop, tail/turn, backup lights shall be Weldon brand in a tri-cluster housing. The marker lights shall be seal beam type.

## **BACKUP ALARM**

An Ecco brand backup alarm shall be installed and shall be activated when the unit is placed in reverse gear.

## **COMPARTMENT LIGHTING**

Three (3) 5" diameter interior lights shall be installed in each compartment. Two (2) lights shall be installed in the top of the compartment and one (1) shall be located in the side of the compartment to provide additional lighting below the shelf (mounted to the unistrut). All lights shall be mounted in the body so that the adjustable shelves and trays can be easily moved without the moving of the lights and provide adequate illumination. All compartment lights shall operate when the compartment door is opened.

A large red light shall be mounted in the cab visible from the driver's and officer's seat.

Each compartment door shall be equipped with a door open indicator switch. When contact is broken at these switches, it shall activate the compartment open light in the cab.

There shall be two (2) lights installed in the engine compartment to illuminate the engine area. There shall be a switch located adjacent to one (1) light, the other light shall be activated by the high beam switch.

There shall be eight (8) high intensity water resistant lights mounted under the unit to provide proper ground area illumination in areas designed for the personnel to climb onto or descend from the apparatus.

Two (2) Whelen #4E series halogen steady-on cornering lamps with clear lenses shall be provided to illuminate the area adjacent to the front corner of the cab, when the turn signal switch is activated.

The lights shall be installed under each bumper end.

An alternating high beam head lamp flashing system shall be installed into the high beam head lamp system, that will allow the high beams to flash alternately from left to right.

The completed system shall be capable of using high beam to override the flashing function and will flash high beams when the low beam head lamps are selected.

## **LOAD MANAGER**

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There shall be one (1) Kussmaul Load Manager 1901 with automatic load shedding system, low voltage alarm installed on the unit. The load manager monitors the vehicles battery voltage so if the voltage drops, outputs are individually deenergized. An output indicator terminal is provided to permit connecting an LED indicator which is energized whenever the load shed circuit is functioning.

## **HIGH IDLE SWITCH**

There shall be a high idle switch located in proximity of the master switch panel, preset at 1250rpm's.

## **MASTER SWITCH PANEL**

The master switch panel lay out shall be as follows from left to right:

RED Master Warning. (All red warning lights to activate with this switch)  
White Lights.  
Left Scene Lights.  
Right Scene Lights.  
Rear Scene Lights.  
Ground Lights.  
Q-Siren.

The Master Switch Panel shall be located in the center space panel of the dash.

The switches located in the center space panel of the dash, shall be moved to the lower space panel.

## **BATTERY CONDITIONER WITH RECEPTACLE**

A Kussmaul Auto Charge 1000 with 20amp inlet receptacle, shall be installed on the unit. The LED readout and receptacale shall be located in the driver's step overlay.

The receptacle and LED bar graph shall be located in the upper forward portion of the driver's step area.

## **AIR INLET**

There shall be an external air inlet provided in the driver's step area. The inlet shall have the male end installed with the matching female end shipped loose. This inlet shall be plumbed to the chas-sis air system to maintain the proper air pressure for the chassis brakes.

The inlet shall be located in the upper forward portion of the driver's step area.

## **NFPA UPPER WARNING LIGHTS**

### **ZONE A**

One (1) PowerArc model PA69LB-RCRCR 69" light bar shall be installed on the cab roof of the

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unit. There shall be six (6) 50 watt rotators. The lenses shall be red, clear, red, clear, red.

## **ZONE B**

Covered by the lightbar.

## **ZONE D**

Covered by the lightbar.

## **NFPA LOWER WARNING LIGHTS**

### **ZONE A**

There shall be two (2) PA210-R lights with hood adapters mounted one (1) each side of the hood.

### **ZONE B**

There shall be two (2) PowerArc model PP2 red lights mounted on the streetside of the body wheel well area.

### **ZONE C**

There shall be two (2) PA210-R lights shall be mounted on the rear face of the body lower portion.

### **ZONE D**

There shall be two (2) PowerArc model PP2 red lights mounted on the curbside of the body wheel well area.

## **UPPER ZONE C**

There shall be two (2) PA210-R lights shall be mounted on the rear face of the body upper portion.

## **SIREN**

There shall be one (1) Federal PA-4000 siren with noise canceling microphone shall be installed in cab center console.

The siren head shall be located in the upper space panel of the dash.

## **EAGLE SIREN**

One (1) Eagle siren shall be provided and installed recessed in the front bumper. There shall be two (2) foot switches floor mounted, one (1) on each side of the cab. The Q-Siren brake switch shall be activated with the siren enable switch in the off position.

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## **SPEAKER**

There shall be one (1) compact Cast Product SH2015 flush mount speaker with 100 watt driver and a polished finish will be supplied. It will be installed in the front chassis bumper on the driver's side.

## **AIR HORNS**

Two (2) Grover emergency Stutter Tone air horns shall be mounted one (1) each side of the cab hood.

## **AIR HORN CONTROL**

The horns shall be activated by Linemaster brand Model 491-S floor switches. The switches shall be located one (1) on each side of the driving compartment.

## **SCENE LIGHTS**

The unit shall be equipped with six (6) Whelen 810 series 8-32 degree halogen lights. Scene lights shall be surface mounted lights and located two (2) on the right side, two (2) on the left side and two (2) on the rear of the apparatus. There shall be three (3) switches in the cab for the lights.

The switches shall be labeled as follows:

Scene Right  
Scene Left  
Scene Rear

The rear scene lights shall be activated when the unit is placed in reverse. This mode is in addition to the switches provided in the cab.

## **INSTALL ANTENNAS**

Two (2) antennas and coax shall be mounted on the cab roof.

The location of the antennas shall be rearward of the lightbar, one (1) each side.

One (1) coax shall be run to the radio and one (1) to behind the dash for later connection.

The department shall supply the Two (2) antennas and coax to be mounted on the apparatus.

## **RADIO MOUNTING**

Install the department supplied radio center mounted below dash of cab. The radio shall be connected to power/ground and to one (1) of the antennas.

## **PROVIDE AND INSTALL SETCOM HEADSET SYSTEM**

**A TWO (2) PERSON TWO (2) POSITION EMERGENCY APPARATUS HEADSET/INTERCOM**

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## SYSTEM

### SETCOM SYSTEM SETUP INTERCOM/RADIO COMMUNICATIONS

The intercom system shall be the voice-activated type with radio interface capabilities. The intercom shall be designed to instantly turn on when the firefighter begins to speak, and turn off within one half second after speaking stops. The intercom system interface with the radio shall allow all communications, both transmitted and received to be heard through each headset.

The system shall be capable of accepting two (2) headsets with headset jack locations. The system shall be capable of radio transmission at the following positions: One (1) for the Driver/Engineer and one (1) for the officer/passenger. Of these, the officer/passenger shall be have radio transmit priority abilities so that if the driver/engineer decides to transmit over the mobile radio at the same time as the officer/passenger, the transmissions of the officer/passenger shall have priority and override transmissions of the driver/engineer. The system shall have a squelch control that controls the threshold of amplifier turn on. This is to adjust for variation in background noise. All connections within the unit shall be soldered rather than alternate means of connection, so as to hold up under the high vibration conditions common in most fire apparatus. The units shall be constructed in a manner that eliminates the possibility of contamination from moisture, dust or other debris and is immune to RFI and does not require special or shielded cable.

#### Locations of headset jack stations:

##### One (1) master station in cab.

If the intercom communications feature is being used in an intercom V.O.X. (Voice Activated) capacity when a radio transmit location is activated, those intercom communications shall be automatically cut off so as to allow for radio transmissions to occur without background noise from intercom communications. While this is occurring, all positions shall be able to hear both the transmitted and the received radio transmissions.

## HEADSETS

The two (2) headsets shall be (Behind-the-head) style, double ear, each with a boom mounted microphone, coiled cord having 105 strand wire extending to a soldered point on a single plug with a molded plastic cover surrounding the complete unit.

The microphone shall be the noise canceling, electric condenser type capable of eliminating radio frequency and electro-magnetic interferences. The headset microphones shall be mounted on a fully articulating swivel action boom capable of being rotated 180 degrees for use on the right or left side of the head.

The systems shall be designed so that when a radio push to talk switch has been activated, the other microphones within the system will automatically be inactivated, also, all personnel shall be able to hear communication over the radio through their headset.

Only the headset station with its push to talk switch depressed shall be heard over the radio. The push to talk switches shall be designed so they can be conveniently located in the apparatus in an area that will provide ease of operation by field personnel.

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The headsets shall have a NRR (Noise Reduction Ratio) of 25DB or greater. Each headset shall have individual volume control mounted on the ear cup. They shall also be able to be disconnected quickly from each of the headset stations.

The headset headband shall be adjustable to provide a comfortable fit for differing head sizes and shapes, and to allow wearing with the helmet.

## **The following equipment shall be provided and installed:**

**One (1) IM-900E Intercom mixer control.**

**One (1) CSB-900L Headset left dress.**

**One (1) CSB-900R Headset right dress.**

**One (1) 9RC-18MW Radio Interface Cable with 16 Pin Connector.**

**One (1) PRAC-9M2 Portable Radio Cable for Motorola HT 1000.**

## **PAINTING**

The exterior tank, compartments, front bumper and fender wells shall have no mounted components prior to painting to assure full coverage of metal treatments. Compartment doors will be painted separately to assure proper paint coverage on body, door jambs and door edges.

All painted surfaces shall follow the following procedure to insure a lasting finish.

Metal surfaces shall be sanded to remove all burrs and imperfections, before etching and treatment.

A wax & grease solvent shall be used to clean and prep the surface. The surface shall then be rinsed with freshwater. This step removes wax, grease and other surface contaminants, thus leaving a bright, clean and conditioned surface.

A self etching, primer shall be applied next. The self-etching primer shall fill all of the minor imperfections, scratches, etc. in the metal. This step produces a corrosion resisting conversion coating that fends off oxidation and other surface contaminants leaving a surface that gives excellent paint adhesion.

A sandable primer shall be sprayed on the metal, that seals the surface for the polyurethane paint. A minimum coating thickness of 2 mil shall be applied. Primer is then sanded smooth leaving the best surface for top coat.

The apparatus body shall then be painted with a minimum of three (3) coats of high luster final finish polyurethane paint.

These steps are followed as recommended by the paint manufacturer to provide a lasting and high quality gloss finish. All paint products shall be provided by the same manufacture as the top coat finish.

**Paint Code: On chassis and body to match as close as possible to :**

**Chassis:**

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**Upper: PPG-2185 White.**  
**Lower: PPG-71665 Flame Red.**

**Body:**

**PPG-71665 Flame Red.**

## **DEALER PROVIDED CONFERENCES**

The department shall be provided the following conferences.

### **PRE-CONSTRUCTION CONFERENCE**

There shall be a pre-construction conference held, prior to manufacturing.

Two (2) individuals from the Walker Fire Department shall be provided by the contractor, transportation, lodging, meals to Summit Fire Apparatus, at Edgewood KY.

### **MID-CONSTRUCTION CONFERENCE**

There shall be a mid-construction conference held, prior to painting.

Two (2) individuals from the Walker Fire Department shall be provided by the contractor, transportation, lodging, meals to Summit Fire Apparatus, at Edgewood KY.

### **FINAL INSPECTION CONFERENCE**

There shall be a final-construction conference held, prior to delivery of the completed apparatus.

Two (2) individuals from the Walker Fire Department shall be provided by the contractor, transportation, lodging, meals to Summit Fire Apparatus, at Edgewood KY.

### **DELIVERY**

The completed Apparatus, to insure proper break-in of all components while still under warranty, shall be delivered under its own power to the Walker Fire Department by Walker Fire Department personnel.

The cost for the delivery of the unit to the City of Walker will be paid for by the Dealership.

### **TRAINING**

Summit Fire Apparatus., shall have a qualified delivery engineer instruct the Walker 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 " Summit ", for three (3) days of training.

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## **APPARATUS PRE-DELIVERY INSPECTION**

The following shall be performed by the Dealership service center before the apparatus is delivered to the fire department:

### **Chassis:**

- \* All fluid levels shall be checked and filled.(If needed)
- \* The drive train shall be completely lubed.
- \* All belts and brakes shall be checked for proper adjustment.
- \* The batteries, electrical system and components shall be completely checked.
- \* Secondary braking system.
- \* The warning light/siren/air horn systems shall be completely checked.
- \* All shoreline plug-ins and all components energized by the shoreline.
- \* Chassis door adjustments.
- \* The tires checked for proper pressure.

### **Pump:**

- \* All fluid levels shall be checked and filled.(If needed)
- \* Pump engagement and operation of all components, including foam system.
- \* All gated valves and linkages shall be completely lubed.
- \* Water shall be flowed thru all discharges.
- \* All gated valves shall be checked for leaks and rod adjustments.

### **Body:**

- \* The warning light system shall be completely checked.
- \* The electrical system shall be completely checked.
- \* All shoreline plug-ins and all components energized by the shoreline.
- \* Body door adjustments.

### **Final:**

- \* The unit shall be road tested.
- \* The unit shall be completely cleaned, inside and outside.
- \* The unit shall be filled with fuel.

## **DEALER SUPPLIED EQUIPMENT PROVIDED WITH THE COMPLETED APPARATUS**

The following equipment shall be supplied by the Dealership with the delivered apparatus. Mounting shall be provided for the equipment specified to mount.

### **6"NSTFSLH X 5" STORZ SWIVEL W/BLEEDER**

Two (2) 6" NST female swivel long handle x 5" Storz stainless steel piston intake relief valves with bleeder, cap/locks and chain.

Harrington: H500S-50-60NH / HBC-50

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## **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

## **6" NSTFLHS FLOATING SUCTION STRAINER**

One (1) 6" NST female swivel with long handle floating suction strainer.

Kocheck: FS60

## **FRONT FULL STAINLESS STEEL WHEEL COVER**

There shall be a full stainless steel wheel cover simulator installed on each front wheel, with stainless steel nut covers and 2" valve extensions.

Real Wheels Brand:

## **REAR FULL STAINLESS STEEL WHEEL LINERS**

There shall be a set of full stainless steel wheel simulators installed on each rear axle outside wheel, with stainless steel nut covers and stainless steel braided valve extensions. Total of two (2) sets.

Real Wheels Brand: