DANKO STOCK T-0336

DANKO PTO DRY SIDE TANKER
2,000 Gallon UPF Poly Tank

NFPA 1901-2016 COMPLIANCE

The National Fire Protection Association “Standard for Automotive Fire Apparatus, 2016 Edition, is hereby adopted and made a part of these specifications, the same as if it were written out in full detail, with the exception of the section dealing with "Equipment Recommended for Various Types of Apparatus". Bidders shall provide the equipment requested herein and the buyer shall supply the rest before the apparatus is put into service.

The proposed apparatus as described in this specification document and all related material with the bid package shall meet or exceed all applicable sections for the category of apparatus as defined by NFPA 1901 newest edition, unless specifically noted within this specification or other official documents associated with this bid.

Should any area, section or portion of the apparatus not meet the intent and applicable requirements, a clearly defined listing or explanation of what and why compliance was not achieved shall be provided to the purchaser at the time of delivery.

NFPA STATEMENT OF EXCEPTIONS

The proposed apparatus as described in this specification document does not meet the intent and applicable requirements based on the specified edition of NFPA in the following areas:

The required “Minor Equipment” as stated in the newest edition of NFPA 1901, sections 7.9 shall be the responsibility of the purchaser unless otherwise specified in these specifications.

VEHICLE STABILITY

The apparatus shall comply with the vehicle stability requirements of the 2016 edition of NFPA 1901. The apparatus shall be considered substantially similar to a previously tested apparatus meeting the stability requirements based on section 4.13.1.1.2.

HIGHWAY PERFORMANCE

The apparatus shall be tested at its estimated in-service weight to verify the NFPA 4.15.1 Highway Performance Test and 4.17 General Pre-Delivery Tests are met for the apparatus prior to delivery.

TIRE PRESSURE INDICATING VALVE CAPS

The apparatus shall be equipped with a visual indicator on each tire to warn the operator when tire pressure needs to be checked.

PERMANENT FLUID PLATE

A permanent plate shall be affixed to the completed apparatus specifying the quantity and type of the following fluids that may be used in the apparatus for normal maintenance. Where a fluid is not applicable to the unit, the plate shall be marked N/A to inform a service technician who may not be familiar with the apparatus.

APPARATUS FLUIDS	
Engine Oil	Pump Transmission Lubrication Fluid
Engine Coolant	Pump Primer Fluid
Transmission Fluid	Air Compressor System Lubricant
Drive Axle Lubrication Fluid	Generator System Lubricant
Transfer Case Fluid	Front Tire Cold Pressure
Power Steering Fluid	Rear Tire Cold Pressure
Air Conditioning Refrigerant	Other:
Air Conditioning Lubrication Oil	Misc:

*** Sample Label for Reference Only.*

A sign shall be affixed in the chassis cab, in plain sight of the driver, that states the maximum number of personnel, and the overall travel length and height of the apparatus.

A sign that reads “OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION” and “DO NOT WEAR HELMET WHILE SEATED” shall be visible from each seated position.

Any other appropriate label(s) shall be affixed in noticeable locations to ensure the safe operation of the apparatus.

MAXIMUM SPEED REQUIREMENT

The maximum top speed shall not exceed 60 MPH (95 km/hr) or the tire manufacturer's maximum fire service speed rating, whichever is lower on vehicles with a gross vehicle weight rating (GVWR) over 50,000 lbs. (22,680 KG) or a combined water/foam capacity over 1,250 gallons.

CHASSIS SEAT BELTS

The chassis shall have bright red or bright orange seat belts as required by NFPA. This option shall be provided by the chassis manufacturer.

VEHICLE DATA RECORDER (VDR)

The chassis shall be equipped with a Vehicle Data Recorder (VDR) which shall be provided and installed by the chassis manufacturer.

CHASSIS ENGINE WORK LIGHT

One (1), 12-volt work light shall be located in the chassis engine compartment.

BATTERY CHARGER WITH BAR GRAPH DISPLAY

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

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

The charger shall have the following operational specifications:

- 120 volt AC input at 3.5 amps
- 12 volt DC output at 15 amps
- Battery Saver: 3 amps 12 volt DC output
- AC power applied light on front panel
- Battery Saver circuit overloaded
- Dimensions: 9.35" high x 5.9" wide x 4.725" deep
- Weight: 17 lbs.

The battery charger shall supply a 'single battery bank' with automatic operation and with an aluminum enclosure. There shall be a built-in sense circuit to check the battery voltage 120 times a second; the system shall compensate for voltage drop in charging wires and provide quick recharging with no over-charging.

There shall be front panel connections for a remote display.

SUPER AUTO EJECT SHORELINE RECEPTACLE

A flush mount Kussmaul model 091-55-20-120 Super Auto Eject 120-volt shoreline receptacle shall be installed on the left side of the apparatus and connected to the charging system.

When the vehicle is started the shoreline shall automatically eject to prevent the vehicle from being driven away with the line connected. The receptacle shall be supplied with a yellow weatherproof cover unless otherwise specified.

An industrial grade 120-volt connector designed to function with the auto eject shall be provided.

AIR BRAKE REFILL WITH CHECK VALVE

A manual male air inlet shall be located near the driver's door. This fitting shall be connected to the air brake system "wet" tank to allow a remote air source to maintain a usable pressure in the chassis brakes. A check valve shall be provided as part of the system.

A female coupler that will function with the inlet shall be supplied and shipped loose with the completed apparatus.

OEM PAINTED CHASSIS CAB

The chassis cab shall be painted standard red from the chassis manufacturer.

OEM CHASSIS RIMS

The wheel rims shall be as stated in the chassis specifications unless otherwise noted.

AIR HORNS (Provided by chassis manufacturer.)

There shall be dual stutter tone air horns mounted one on each side of the chassis hood. The air horns shall be provided and installed by the specified chassis manufacturer.

FIRE EXTINGUISHER(S)

One (1), 5 lb. ABC D.O.T approved fire extinguisher(s) with a vehicle mounting bracket shall be provided with the completed apparatus and shipped loose in the chassis cab.

ROAD SAFETY KIT(S)

One (1), road safety kit(s) shall be provided with the completed apparatus. Each kit shall consist of three (3) D.O.T approved reflective triangles.

APPARATUS BODY

The apparatus body shall be approximately 160" long x 100" wide and designed to mount on a 150" cab to axle chassis.

BODY AND COMPARTMENT CONSTRUCTION

The body and compartments shall be constructed of 3/16" smooth aluminum sheets, formed using the break-and-bend method of fabrication and aluminum mig welded. The smooth aluminum shall be T5052. This uni-body method of construction forms the aluminum into a strong, yet flexible structure.

The complete body shall be modular style, to be easily removed and mounted to another chassis.

The body compartments will be properly sealed to keep dirt and water from entering. The compartment floors shall be sweep out type and be made to the largest practical dimensions in order to provide maximum storage capacity.

LEFT SIDE TREADBRITE OVERLAY

There shall be a 1/8" aluminum embossed treadbrite overlay above the compartments on the left side of the apparatus. The overlay shall prevent damage to the paint while loading and unloading equipment that is mounted above the compartments.

GRAVEL SHIELD

There shall be a 1/8" aluminum treadbrite gravel shield attached to the front, outer edges of the apparatus body to protect the body from debris that may cause the paint to chip.

RUB RAILS

Polished aluminum rub rails 1-1/2" wide x 3/8" thick, to be furnished below the compartment doors, on both sides of the apparatus body. The rub rails to be spaced 3/4" from the body enabling shock absorbency and cleaning ease. Spacers shall be nylon, with counter sunk stainless steel bolt fasteners for easy replacement.

REAR FENDER WELLS

The rear fenders shall be built integral with the sides of the apparatus body. The fender wells shall be constructed of smooth, painted aluminum with a heavy-duty, polished extruded aluminum fenderette. A circular smooth aluminum inner wheel liner shall be furnished for each fender providing an easy to clean area. Sufficient clearance shall be provided to allow for the use of tire chains when the apparatus is fully loaded.

UNDERCARRIAGE STRUCTURE

The undercarriage structure shall be fabricated of steel and mig welded to form an integral structure. The carriage will support the tank, compartments, fenders and rear step. The steel tube cross members to be 2" x 3" x 1/4" thick. The area between the body compartments shall have a 3" x 5" x 1/4" thick, steel angle, welded around the inside perimeter of the undercarriage to cradle and support the polypropylene tank and keep it from shifting, within the body. The side compartments and fenders shall be adequately bolted to the steel tube cross members of the undercarriage structure.

The complete undercarriage structure to be hot dipped galvanized after its fabrication and construction, and shall have a life time warranty for rust and corrosion.

There shall be a minimum of 1/4" rubber pad installed between the cradle and the bottom of the tank to prevent chafing.

MUDFLAPS

Two (2), mudflaps shall be supplied and mounted one on each side behind the rear wheels.

COMPARTMENT ROLL-UP DOORS

All roll-up type doors shall be shutter type, with 34mm aluminum slats that roll onto a spool at the top of the compartment. Each slat has interlocking end shoes to prevent each slat from moving side-to-side and binding the door. Between every slat is a co-extrusion PVC & Rubber inner seal to prevent metal-to-metal contact, dirt and moisture from entering the compartment. This inner seal is hidden to provide a consistent image of the door.

Each individual roll-up door shall have a four inch diameter counterbalance operator drum to assist in lifting the door along with a two inch wide finger pull integrated as part of the bottom rail extrusion for easy one hand opening and closing. There shall be nylon end shoes on every slat to assure operation without constant lubrication.

The slats, track and trim shall have an anodized satin finish to eliminate oxidation and rusting.

The door latch system shall be a full width one-piece non-locking lift bar operable by one hand.

COMPARTMENT VENTING

All body compartments shall be properly vented to relieve the pressure when opening and closing the compartment doors. The vents shall be mounted in a manner that will reduce the amount of dirt and water that may enter the compartment.

COMPARTMENT LIGHTING

The lighting strip shall be sealed in a flexible, water resistant, plastic body with (9) LED's every three inches and rated for 50,000 hours with an output of 33.8 lumens for every 6". This style of lighting will provide uniform and consistent illumination throughout the compartment.

The lighting strip shall be mounted vertically on the inside of the door opening and activated by an automatic switch located at each door.

COMPARTMENT L1

There shall be one (1) compartment located directly behind the cab with an approximate opening of 63" wide X 28" high and a lower usable depth of 26". The door shall be a roll-up door.

There shall be floor matting installed in the compartment to provide traction and drainage should water enter the compartment.

This compartment door opening shall be supplied with two (2) lighting strips.

COMPARTMENT R1

There shall be one (1) compartment located directly behind the cab with an approximate opening of 63" wide X 28" high and a lower usable depth of 26". The door shall be a roll-up door.

There shall be floor matting installed in the compartment to provide traction and drainage should water enter the compartment.

This compartment door opening shall be supplied with two (2) lighting strips.

PUMP MODULE

The fire pump and plumbing shall be mounted within a separate body module that is not integral with the apparatus body.

The pump module shall be manufactured by Waterous and shall be securely mounted to the frame by the apparatus body builder. All mounting points shall be reinforced to carry the expected load for the life of the apparatus.

The pump module shall be constructed entirely of 6061-T6 aluminum extrusions and 5052-H32 plate. The pump module subframe shall be constructed of 3/8" steel. The module shall be mounted to the frame via elastomeric mounts to allow normal vehicle chassis deflection without transferring stress to the pump module.

The integral running boards shall be tubular in design with NFPA compliant embossed anti-slip treadbrite applied to provide a suitable stepping surface.

PUMP MODULE OVERLAY

The front of the pump module shall have an aluminum treadbrite overlay.

LEFT SIDE OPERATOR PANEL

The side panels shall be 304 #4 stainless steel with a brushed finish.

The left side panels shall have a fixed main panel as well as a hinged operator's panel in order to provide access to the backside of the pump module controls and gauges.

All controls and instrumentation shall be located on the left side except the possible exception of a right side auxiliary intake valve.

RIGHT SIDE OPERATOR PANEL

The right side panels shall consist of a fixed bleeder valve panel and a vertically hinged access panel.

CROSSLAY HOSE BEDS

There shall be two (2) crosslays installed on the pump module. Each crosslay shall be capable of storing 200' of 1-3/4" hose and a nozzle.

The crosslay flooring shall be manufactured from stainless steel with slotted holes to allow for better air flow and drainage.

Each crosslay shall have a 2" quarter turn ball type valve which shall be manually operated at the operator's panel. There shall be a 3/4" drain valve for each crosslay.

The crosslays shall have a hinged aluminum treadbrite cover. The stainless steel hinge shall be fastened to the front side of the crosslay. The cover shall be constructed with .125" aluminum NFPA 1901 approved embossed treadbrite to provide a slip resistant surface.

A webbing restraint shall be located on each end of the crosslay hose bed to prevent unintentional deployment of hose. The webbing shall be opened and closed using Lift-The-DOT fastener's.

PUMP PANEL LIGHTING

There shall be strip lighting provided on the interior of the pump module to provide uniform and consistent illumination throughout the module. The lighting shall be activated in conjunction with the operator's pump panel work light(s).

PRESSURE GOVERNOR

There shall be a Fire Research PumpBoss pressure governor and monitoring display kit installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof.

The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center.

The following continuous displays shall be provided:

Engine RPM	Check Engine & Stop Engine
Engine Oil Pressure	Engine Coolant Temperature
Transmission Temperature	Battery Voltage
Pressure & RPM Operating Mode	Pressure / RPM Setting
Throttle Ready	

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

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

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

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

MASTER PUMP PRESSURE GAUGES

The 4" master intake and discharge gauges shall be mounted on the operator's panel. They shall be white with black numerals.

The gauge shall be liquid filled to eliminate vibration as well as preventing condensation from forming inside the gauge.

Each gauge shall read from -30 to 400 psi or 0 to 400 psi.

PRESSURE GAUGES

There shall be individual liquid filled pressure gauges installed on the pump panel, one for each discharge outlet of 1-1/2" or larger in size. Each gauge shall read 0-400 PSI with a white face and black numbers and lettering. Each gauge shall be a minimum of 2-1/2" in diameter.

PRESSURE / VACUUM TEST PORTS

Two (2) test plugs shall be mounted on the pump panel for testing of the vacuum and pressures.

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FIRE PUMP

The pump shall be a PTO driven, Waterous 1250 GPM high elevation single stage, model CSPA series centrifugal pump. The pump shall perform as listed below:

Max Flow - 1250 GPM @ 150 PSI

The Waterous CS pump provides reliable performance and shall meet or exceed all NFPA requirements.

The two piece, horizontally split high tensile, close grained iron casing shall have carefully matched passageways to ensure the maximum flow characteristics possible.

IMPELLER AND SHAFT
The impeller shall be bronze and specifically designed for the fire service. The impeller shall be balanced both mechanically and hydraulically for vibration free operation.

An exclusive two piece heat treated stainless steel impeller shaft allows separation of the transmission from the pump without disassembling either component.

WEAR RINGS
Bronze, reverse flow, labyrinth-type replaceable wear rings increase pump life and keep maintenance costs to a minimum.

SHAFT SEAL
The pump shaft shall be equipped with face-type, self-adjusting, corrosion and wear resistance mechanical seal.

BEARINGS
Three (3) deep groove, anti-friction ball bearings, which are located outside the pumping chamber, shall give support and proper alignment to the impeller shaft assembly. The bearings shall be oil or grease lubricated and shall be protected by seal housings, flinger rings and oil seals.

FLINGER RINGS
Flinger rings shall be located on the impeller shaft between seal housings and bearing housings. The flinger rings provide added protection and to keep water and any foreign matter out of the bearings.

OIL SEALS
A standard lip type seal shall be provided for lubrication and additional bearing protection from both dirt and water.

PUMP HOUSING
The pump housing is constructed of high-strength aluminum.

DRIVE and DRIVEN SPROCKETS
The drive and driven sprockets shall be constructed of steel and shall be hardened and have ground bores.

DRIVE CHAIN
There shall be a Morse HV, high strength involute with a form chain drive provided.

BEARINGS
The transmission shall be equipped with deep groove, anti-friction ball bearings to provide support and proper alignment to the impeller shaft assembly. The bearings shall be oil splash lubricated, completely separated from the water being pumped and protected by a V-ring and oil seals.

LUBRICATION SYSTEM
The internal lubrication system delivers lubricant directly to the chain drive. This unique design eliminates the need for an external lubrication pump and auxiliary cooling.

The pump shall have a five (5) year warranty.

APPARATUS PUMP SYSTEM CERTIFICATION

The pump shall be tested after the pump and all its associated piping and equipment have been installed on the fire apparatus by the apparatus manufacturer.

The testing shall include several tests as listed in the latest edition of NFPA Pamphlet 1901. The tests shall include, but not be limited to, the pumping test, pressure control systems, priming system, vacuum, gauge and flow meter, and water tank–to–pump flow.

A test label shall be provided to indicate the rated discharges and pressures together with the speed of the engine as determined by the certification and attached to the vehicle prior to shipping.

A third party certification of the pump test results shall be included with the delivery binder documentation.

PUMP COOLER LINE

There shall be a Class 1 3/8" pump cooling/recirculating line connected from the discharge side of the pump directly into the water tank. The cooler line shall be controlled with a valve on the operators panel, and it shall be clearly labeled.

OILLESS PRIMER

A Waterous VPO electric motor driven rotatory vane primer shall be utilized. The primer allows repriming while pumping without reducing engine RPM. All rotating parts are made of corrosion resistant, anodized aluminum, stainless steel and composite materials.

A vacuum activated priming valve shall be supplied to control the primer. The VAP opens automatically during pump priming and closes automatically when the primer is deactivated. The push button primer switch shall be mounted near the pump.

HOT SHIFT PTO CONNECTION

The pump shall be connected to the chassis transmission through a "Hot Shift", electrically engaged power-take-off system. The control to engage and disengage the power-take-off system shall be installed in the chassis cab.

NOTE: The apparatus is engineered for “stationary pump application only”.

PUMP ENGINE RUNNING WARNING LIGHT

A green flashing LED hazardous warning light shall be mounted in the chassis cab. This light shall warn the operator that the pump is engaged.

The warning light shall be marked with a decal that states "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

DRIVELINE

The driveline between the PTO and the fire pump shall be tube type with heavy-duty universal joints.

HEAT EXCHANGER (Supplied with Chassis)

The chassis engine shall be supplied with a supplementary cooling system that uses water from the discharge side of the pump to cool the engine coolant through the use of a closed heat exchanger. This cooling system shall be controlled by a valve on the pump operator panel. The water from the pump and the engine coolant shall not be intermixed.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, waterways and manifolds shall be cast iron or fabricated with stainless steel piping, brass or high pressure flexible piping with stainless steel couplings.

Where waterway transitions are critical no threaded fittings shall be allowed therefore allowing a smooth transition of the water flow to minimize friction loss and turbulence.

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 ranging from 1-1/2" to 4".

For flexible piping that is 3/4", 1" and 5" the synthetic rubber hose shall be rated at a 250 PSI working pressure and 1000 PSI burst pressure.

All sizes shall be rated at 30 in HG vacuum.

MASTER DRAIN VALVE

There shall be a master drain valve installed to simultaneously drain all points of the pump with a single control. The valve shall be designed so that discharge pressure will not accidently allow the master drain valve to open.

The drain valve control shall be mounted on the pump panel and identified as "Pump Drain".

DRAIN VALVE

All discharges, crosslays and inlets shall be equipped with a 3/4" quarter turn drain valve.

TANK TO PUMP

There shall be a 3" in-line tank to pump valve installed between the water tank and the pump. The valve shall be manually operated with a T-handle at the operator's panel.

TANK TO PUMP CHECK VALVE

There shall be a check valve between the pump suction and the water tank valve. The check valve shall eliminate back flow into the water tank when the pump is connected to a pressurized source.

TANK FILL

One (1) 2" pump to tank fill line shall be installed with a 2" in-line quarter turn ball type valve. The valve shall be manually operated at the operator's panel with a T-handle.

LEFT SIDE INTAKE

One (1), 2-1/2” auxiliary intake(s) shall be located on the left side of the apparatus. The manually operated intake valve shall be a quarter turn ball type constructed of an all brass body.

The intake(s) shall terminate with a 2-1/2" FNST straight brass adapter. The intake shall also be equipped with a quarter-turn 3/4" drain valve.

A chrome plug with chain shall also be supplied.

LEFT SIDE INTAKE

One (1), 6" male intake shall be located on the left side of the apparatus. The intake shall be plumbed with 6" plumbing and terminate with a chrome 6" NPT female x 6" NST male fitting with a screen to prevent foreign objects from entering the pump.

The screen shall be removable and constructed of die cast zinc to provide cathodic protection for the pump, thus reducing corrosion.

One (1), 6" NH female long handle vented chrome plate steamer cap shall be supplied for the steamer inlet.

RIGHT SIDE INTAKE

One (1), 6" male intake shall be located on the right side of the apparatus. The intake shall be plumbed with 6" plumbing and terminate with a chrome 6" NPT female x 6" NST male fitting with a screen to prevent foreign objects from entering the pump.

The screen shall be removable and constructed of die cast zinc to provide cathodic protection for the pump, thus reducing corrosion.

One (1), 6" NH female long handle vented chrome plate steamer cap shall be supplied for the steamer inlet.

INTAKE RELIEF VALVE

There shall be a 2-1/2" intake relief valve system installed on the apparatus. The relief valve shall be pre-set at 125 PSI with an adjustable range of 75-250 PSI.

CROSSLAY PRECONNECT DISCHARGES

Two (2) 2" discharge preconnects shall be provided and plumbed from the manifold with 2” full flow, quarter turn valves and 2” plumbing. The valves shall be controlled at the operator's panel.

LEFT SIDE DISCHARGE

One (1) 2-1/2" discharge outlet shall be located on the left side of the apparatus. The discharge shall be equipped with a quarter turn ball type valve that is constructed of an all brass body and shall have either a chrome plated brass ball or a stainless steel ball. The valve shall be manually operated.

The discharge shall be equipped with a 30 degree elbow that terminates with 2-1/2" MNST threads.

There shall be a 2-1/2" vented chrome cap with chain supplied for the discharge.

3" DISCHARGE

One (1) 3" discharge outlet(s) shall be supplied and located on the right side pump panel. The valve shall be a quarter turn ball type valve constructed of an all brass body and shall have either a chrome plated brass ball or stainless steel ball.

The discharge shall be equipped with a 30 degree elbow that shall terminate with 3" MNST threads.

There shall be a 3” vented chrome cap with chain supplied for the discharge.

REAR FACING DISCHARGE

One (1) 2-1/2" discharge outlet shall be located at the rear of the pump module and shall terminate in the hosebed above the tank.

The discharge shall be equipped with a quarter turn ball type valve that is constructed of an all brass body and shall have either a chrome plated brass ball or a stainless steel ball. The valve shall be manually operated.

DECK GUN DISCHARGE

There shall be a 3" discharge plumbed for the future installation of a deck gun. The plumbing shall terminate with a 3" NPT pipe thread and shall be capped.

The valve shall be a quarter turn ball type constructed of an all brass body and either a chrome plated brass or stainless steel ball. The valve will be equipped with a slow operation mechanism per NFPA 1901.

MANUAL DRAIN VALVE

There shall be manual drain valve(s) installed in the lower sections of the plumbing to drain the waterway.

REAR DIRECT TANK FILL

One (1) threaded 4” fast fill fitting shall be provided at the rear of the polypropylene tank. The fill fitting shall be provided with an internal defuser pipe.

One (1) TFT model AB1ST-NT manually operated lightweight aluminum valve shall be located at the rear left side of the tank and plumbed directly to the tank with a 4" NPT x 5" NST brass double male adapter and an aluminum support bracket.

The valve shall feature a 5" Storz rigid outlet with 30 degree swiveling detent elbow and a 5" female NH swivel handle connection and include polymer bearing strips for prevention of galvanic corrosion.

The valve shall be controlled with an NFPA compliant slow close hand wheel gear operator. A 3/4" bleeder valve shall be provided to exhaust excess air or water from the valve and hoseline and a position indicator to allow for quick visualization of the status of the valve.

One (1), 5" Storz with manual locks x 2-1/2" NST rocker lug female swivel lightweight aluminum adapter shall be provided.

One (1), 2-1/2" chrome plug with chain shall be supplied for the inlet valve.

WATEROUS AQUIS 2.5 FOAM SYSTEM

The apparatus shall be equipped with a Waterous Aquis foam proportioning system. The foam system is rated at 2.5 GPM at 150 psi with operating pressures up to 450 psi.

The Operator Interface Terminal (OIT) is mounted to the pump operator's panel to allow the operator to perform the following functions:

- Rotary dial control of foam proportioning rates from 0.1% to 1%, in infinite increments
- Calibrate flow rate
- Flashes a "low concentrate" warning when foam tank runs low
- Displays a "no concentrate" when foam tank is empty
- Flashes a "error" warning with a code in the event of electronic malfunction
- Provides a manual back up mode which is controlled by the operator

The foam system is equipped with a brass and stainless steel check valve to prevent water backflow into the foam supply reservoirs.

The foam system is equipped with a 12 volt electric motor driven, positive displacement triplex plunger foam pump.

FOAM CELL

One (1), twenty (20) gallon foam cell shall be constructed by UPF as an integral part of the polypropylene water tank. The foam cell can be used for either Class A or Class B foam and shall be completely resistant to any reaction caused by the foam or any additives that may be used under normal circumstances. The seams shall be nitrogen welded and spark tested for maximum strength.

The foam tank shall have a manual fill tower with lid and shall be constructed of 1/2" PT3™ polypropylene and have minimum dimension's of 8" x 8" outer perimeter.

The tower shall be located as indicated by the apparatus manufacturer and have a 1/4" thick removable polypropylene screen and a molded cover.

Inside the fill tower, approximately 1-1/2” down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower.

FOAM CELL CLASSIFICATION

The foam cell shall be green in color to represent Class A foam.

SHUT OFF VALVE

A 1/2" shut-off valve shall be installed between the foam cell and the foam system for ease of maintenance.

There shall be one (1), 1/2" Watts full flow, quarter-turn valve mounted on the foam cell with a drainage hose routed below the frame rail of the chassis.

FOAM LEVEL GAUGE

One (1), Innovative Controls Inc. electronic foam level fluid meter with a sealed probe shall be mounted into the tank. The indicator panel shall feature high intensity LED's and display FULL, 3/4, 1/2, 1/4 and REFILL levels that are easily distinguished at a glance.

The foam level gauge shall be located on the operator's panel.

AIR BOTTLE STORAGE LEFT SIDE WHEEL WELL

Two (2), single air bottle storage tubes shall be installed in the rear wheel well area on the driver's side of the body. The tube shall be an aluminum 8" diameter tube with a protective insert to prevent damage to the cylinder. There shall be a drain hole in the rear of the tube.

Two (2), Cast Products hinged access doors with o-ring gaskets shall be provided to enclose the air bottle storage tubes.

NOTE: The maximum useable depth of the bottle storage is 22". The customer and/or dealer is responsible to verify the bottle dimensions for an accurate fit.

AIR BOTTLE STORAGE RIGHT SIDE WHEEL WELL

Two (2), single air bottle storage tubes shall be installed in the rear wheel well area on the passenger's side of the body. The tube shall be an aluminum 8" diameter tube with a protective insert to prevent damage to the cylinder. There shall be a drain hole in the rear of the tube.

Two (2), Cast Products hinged access doors with o-ring gaskets shall be provided to enclose the air bottle storage tubes.

NOTE: The maximum useable depth of the bottle storage is 22". The customer and/or dealer is responsible to verify the bottle dimensions for an accurate fit.

REAR SWIVEL DUMP VALVE

One (1), Newton 10” Kwik-Dump model 1055-34-44-DK stainless steel valve shall be supplied and mounted at the rear of the water tank. The valve shall be 20" in length with top mount manual controls.

The valve shall be equipped with a swivel chute that has a horizontal travel range of approximately 180 degrees allowing the user to unload from each side and the rear of the apparatus. A latch shall be provided to store the swivel in stationary position towards the left side of the vehicle during transit.

One (1), 20” stainless steel telescoping extension shall be supplied and mounted to the swivel chute with a spring-loaded clip enabling the chute to be locked or released easily and quickly. The extension shall have a natural polished finish and controlled manually.

REAR TAILBOARD

The rear tailboard framework shall be constructed with aluminum tubing and grip strut grating. The tailboard shall be 11-1/2" in depth, the full width of the body and bolted directly to the steel undercarriage at the rear of the body.

REAR ACCESS LADDER

One (1), access ladder shall be mounted at the rear of the apparatus on the right side. The ladder shall be constructed with 1" x 2" x 1/8" aluminum tubing, slip resistant rungs, a flip-down step with latch and rubber bumper for easy access.

TOW EYES

Two (2), heavy duty chrome tow eyes, shall be installed at the rear of the body above the rear step. The tow eyes shall have a 2-3/16" inside diameter eye with a 1-1/4" threaded shaft and nut. The tow eyes will be fastened one on each side through the body frame to the chassis frame rails.

WATER TANK

The capacity of the water tank shall be 2,000 U.S. gallons. The tank shall be a low profile "T" square type design and be completely independent of the body and compartments.

For normal fire department applications, the tank shall have a LIMITED LIFETIME WARRANTY that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from UPF. In applications where the tank will be subject to severe conditions, the tank may have a warranty unique to the application that is clearly defined for each such application.

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

The bottom of the tank shall have a sump with anti-whirlpool baffles and two threaded tank outlets in the floor. One outlet shall be used as a combination clean out and drain and the other shall be for the tank-to-pump suction line. An additional outlet shall be supplied in the tank floor for a fill/recirculate line. All outlets shall be appropriately sized based on tank and pump capacities.

There will be two (2) standard tank outlets: one for the tank-to-pump suction line, which shall be sized to provide adequate water flow to the pump; and, one for tank fill line, which shall be sized according to the NFPA minimum size chart for water tanks. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 GPM. All auxiliary outlets and inlets must meet all NFPA guidelines in effect at the time of manufacture.

The polypropylene tank shall have two mounting blocks built within the bottom of the tank; one in front and one in the rear of tank. The tank shall be fastened to the steel undercarriage cross tubing with two (2) steel u-clamps. Each u-clamp shall be fastened to the tank with six (6), 1/2" diameter steel bolts. Rubber pads shall be located between the u-clamps and the cross members of the undercarriage.

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

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The exterior sidewalls of the water tank shall be enclosed with 3/16" aluminum panels with a double 90 degree bend at the top for added strength. The panels shall be supported with a combination of aluminum angles, flats, and aluminum channels welded directly to the apparatus body. The front and rear sidewall panels shall be bolted to the side panels with stainless steel bolts.

The dryside panels shall be painted to match the apparatus body.

The dryside body panels shall extend 10" above the top of the polypropylene tank around the front and sides.

HOSE BED

The area above the water tank and between the extended dryside tank panels shall be used for hose storage.

There shall be matting supplied in the storage area above the water tank to provide traction and drainage should water enter the area.

HOSE BED DIVIDER(S)

One (1) adjustable 3/16" aluminum partition(s) shall be provided in the hose bed. The partition(s) shall be mounted on aluminum slide rail.

VINYL HOSE BED COVER

There shall be a heavy duty RED vinyl hose bed cover installed on the hose bed located above the water tank. The front edge of the cover shall be retained in a "C" channel, and the sides shall be attached with quick-release bungee cords with fender hood fasteners along with a yellow finger loop.

HOSE BED LIGHTING

The hose bed shall be equipped with Versa Bryte LED strip lighting. The light shall be installed towards the front of the hose bed area and shall be activated with the ground lights.

TANK DRAIN VALVE

One (1), 1-1/2" Watts full flow, quarter turn valve shall be provided under the tank sump.

ANTI-SURGE FILL TOWER

The tank shall have an overhead anti-surge fill tower, with a hinged lid and a removable screen. The tower shall be constructed of 1/2" PT3 polypropylene and shall be 16” wide x 24” long x 10” high. The fill tower shall have a 6” overflow tube, to discharge below the tank and behind the rear wheels.

The surge tower is designed to prevent water loss while the truck is in motion. The surge tower design adds a baffle chamber to the existing fill tower which dampens the water flow to minimize water loss down the overflow pipe and out the top of the fill stack.

The fill tower shall be located at the left front corner of the tank.

A weighted steel rod handle shall be mounted on the fill tower to prevent it from accidentally opening.

WATER TANK LEVEL GAUGE

The apparatus shall be equipped with an Innovative Controls tank level gauge. The gauge shall be mounted on the operator's panel.

The tank level gauge shall indicate the water level on an easy to read LED display and show full, 3/4, 1/2, and 1/4 tank. The tank level gauge will utilize a pressure transducer that mounts on the outside of the tank for sensing the water level.

The tank level gauge shall have a super bright LED 9-light display with a visual indication at nine accurate levels.

HARD SUCTION HOSE STORAGE, PAINTED

There shall be storage for two (2) 10' lengths of hard suction hose provided on the apparatus, one storage area per side of the apparatus.

The storage area shall be constructed of smooth aluminum and shall be painted to match the apparatus body.
Each storage area shall have a velcro strap at the rear of the unit to secure each hard suction hose during transport.
NOTE: The hard suction hose storage shall be sized to accommodate up to 6” hard suction hose.

The hard suction hose provided is listed in the loose equipment section.

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LADDER RACK

A ladder storage rack shall be provided and mounted above the left side body compartments. The rack shall be designed and mounted in a manner to allow personnel to quickly remove the ladders. The ladders shall be fastened using a ratchet mechanism.

The ladder rack shall have the capacity to store a 2-section extension ladder and a roof ladder.

The ladders provided are listed in the loose equipment section.

PIKE POLE/LADDER STORAGE

There shall be an enclosed pike pole/ladder storage compartment installed between the folding tank carrier and the tank. The storage compartment shall be constructed of smooth aluminum and shall be 11' deep. It shall be painted to match the apparatus body.

The storage area shall be capable of storing two (2) pike poles and a folding ladder. Velco straps shall be provided to secure the pike poles and ladder in place.
The pike poles provided are listed in the loose equipment section.

HYDRAULIC FOLDING TANK CARRIER

One (1) Zico PTS-HA hydraulic tip down folding tank carrier for loading/unloading of a folding water tank shall be located on the right side of the apparatus. The folding tank carrier shall have the capacity to accommodate a 2,100 gallon folding tank.

This system uses high strength cast aluminum parts and two self-contained hydraulic actuators, creating a more even, parallel operating motion. Flashing indicator lights shall be provided at the front and rear of the system when it is out of the stored position.

A control switch shall be supplied on the side of the apparatus with an interlock to prevent operation unless the parking brake is activated.

The folding tank carrier shall be covered with a smooth aluminum cover on the top and outside areas in between the hydraulic rack arms.

The tank carrier enclosure shall be painted to match the body.

There shall be a center hinge hardware kit installed on the hydraulic portable tank carrier for additional support of the enclosure.

The storage rack shall be connected directly to the hazard warning indicator light located in the cab to warn the driver when the rack is not in the secured position.
The portable tank provided is listed in the loose equipment section.

12-VOLT ELECTRICAL

All electrical equipment shall be installed using high temperature, copper, multi-strand, crosslink-coated wire. The wiring shall be colored coded and the function labeled every 3” end to end.

All wiring shall be enclosed in a protective loom throughout the electrical system and rubber grommets shall be used where the wiring passes through module walls.

All wire connections located under the apparatus body shall be weatherproofed with a clear, flexible, protective coating.

STANDARD CAB CONSOLE

There shall be a console installed in the chassis cab between the front bucket seats. The console shall have a standard layout designed by the manufacturer to accommodate the apparatus specific items such as siren controls, radio(s) and other various controls.

The console shall be finished with a black, durable textured coating.

SWITCH PANEL

An InPOWER switch module system shall be provided and mounted in an easily accessible location inside the chassis cab. The switch module shall contain an adequate number of push button switches to be used for controlling the vehicle 12-volt auxiliary devices.

All push buttons shall utilize a tactile switch design that ensures a positive operation. Each switch position contains a push button switch and a status LED indicator directly above the switch.

The switch module shall be connected to one or more power modules via a logic cable to provide power outputs and digital input system control. The power modules shall contain 12-volt DC power outputs rated at 15 amps each and include over current and short circuit automatic fault shutdown protection. The digital inputs are provided for monitoring external conditions such as ignition switch on, transmission in park, etc. and can be individually programmed.

APPARATUS BODY 12-VOLT DISCONNECT

One (1), disconnect solenoid with a sufficient amp rating shall be wired from the battery and activated by the chassis ignition to disconnect all electrical accessories added by the body manufacturer. Items such as auxiliary engine starter, winch, booster reel(s), or high amp load items shall be excluded from the disconnect solenoid.

One (1), reset breaker shall be installed between the solenoid output and any electrical load.

One (1), indicator light shall be provided to indicate the apparatus 12-volt system is on. The light shall be located in the chassis cab and be visible from the driver’s positions. The light shall be green in color and labeled "BATTERY ON".

DOOR OPEN WARNING LIGHT

A red flashing LED hazardous warning light shall be mounted in the chassis cab. This light shall warn the operator of any open compartment doors, and/or other items permanently attached to the apparatus that may cause damage should the apparatus be moved.

The warning light shall be marked with a decal that states "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

SIREN

One (1), Whelen model 295HFS2 100/200 watt selectable output electronic siren with a flush mount control head shall be supplied and installed in the cab.

The control head operating controls shall consist of a power switch, manual button, and a function rotary switch. The control head overlay shall be illuminated with adjustable soft LED non-glaring backlighting.

The siren shall have 4 Scan-Lock™ siren tones with two (2) manual functions for additional siren tones.

The siren amplifier shall have a "Siren in Use" icon driver and adjustable preset repeat radio volume. The PTT (push to talk) switch on the microphone shall override all siren functions.

SPEAKER

One (1), Cast Products speaker, model SA4311-03M21, 100 watt speaker shall be mounted on the front bumper of the chassis towards the driver's side.

BACK-UP ALARM

The backup alarm shall be an electronic 97-decibel rated alarm installed at the rear of the vehicle. This alarm shall alert personnel any time the transmission is shifted into reverse.

BRAKE/TURN/REVERSE LIGHTS

The apparatus shall be equipped with the following rear tail light package.

The brake/tail lights shall be Whelen M6 series model M6BTT lights. The lights shall have red LED's and a red lens.

The turn arrow lights shall be Whelen M6 model M6T lights. The lights shall have amber LED's and an amber lens.

The reverse lights shall be Whelen M6 movel M6BUW lights. The lights shall have clear LED's and a clear lens.

The lights shall be housed in a Cast Products LH46132 three (3) light horizontal chrome plated housing.

There shall be two (2), amber LED midship auxiliary / turn signal lights installed one on each side of the body.

CLEARANCE LIGHTS

There shall be 1" LED clearance lights provided to comply with ICC regulations. The clearance lights shall be located one on each side and rear corner of the apparatus body and a triple red light cluster recessed at the rear center of the body for a total of seven clearance lights.

Reflectors shall be supplied on the perimeter of the apparatus as specified by ICC regulations.

LICENSE PLATE BRACKET

A polished aluminum, lighted license plate bracket shall be mounted at the rear of the apparatus.

LED GROUND LIGHTING

LED ground lighting shall be installed beneath the apparatus in areas where personnel may be expected to climb on and off of the apparatus. The lights shall illuminate the ground within 30" of the apparatus to provide visibility of any obstructions or hazards. These areas shall include cab doors, and the rear step area.

The ground lighting shall be activated when the emergency or park brake is set.

SURFACE LIGHTING

The completed apparatus shall have sufficient lighting provided as per NFPA 13.10.3 to illuminate all work surfaces, steps and walkways.

The surface lighting shall be activated when the emergency or park brake is set.

VISUAL WARNING LIGHT SWITCHES

All warning and signal lights shall have switches with an indicator light located inside the chassis cab.

UPPER ZONE A LIGHTING

One (1), Whelen Freedom custom 55" LED lightbar shall be installed on the apparatus. The lightbar shall have four corner (2 left red/2 right blue) Super-LEDs and six front Super LEDs (2-Red/2-White/2-Blue).

Two (2) front Super LED takedown lights shall be provided. A switch labeled "takedown" shall be provided in the chassis cab to operate the lights.

All white forward facing emergency lights in the light bar shall be deactivated when the parking brake is engaged in the Blocking Right of Way mode as required by NFPA.

UPPER ZONE B/ZONE D LIGHTING

The following perimeter lighting shall be installed in the upper B and D zones of the apparatus.

One (1) Whelen M6V2R combination warning/perimeter LED light shall be installed on the ***front passenger's side*** of the apparatus. The M6V2R shall consist of a red warning light with a clear perimeter/scene light below. The lighthead shall have red LEDs and a red lens cover. The light shall be housed in a chrome flange.

One (1) Whelen M6V2R combination warning/perimeter LED light shall be installed on the ***rear passenger's side*** of the apparatus. The M6V2R shall consist of a red warning light with a clear perimeter/scene light below. The lighthead shall have red LEDs and a red lens cover. The light shall be housed in a chrome flange.

One (1) Whelen M6V2R combination warning/perimeter LED light shall be installed on the ***front driver's side*** of the apparatus. The M6V2R shall consist of a red warning light with a clear perimeter/scene light below. The lighthead shall have red LEDs and a red lens cover. The light shall be housed in a chrome flange.

One (1) Whelen M6V2R combination warning/perimeter LED light shall be installed on the ***rear driver's side*** of the apparatus. The M6V2R shall consist of a red warning light with a clear perimeter/scene light below. The lighthead shall have red LEDs and a red lens cover. The light shall be housed in a chrome flange.

UPPER ZONE C LIGHTING

Two (2) Whelen M6V2* combination warning/perimeter LED light shall be installed on the outer rear corners of the apparatus, one per side. The M6V2* shall consist of a warning light with a clear perimeter/scene light below. The lighthead shall have colored LEDs and a colored lens cover. The light shall be housed in a chrome flange. The left side shall be red and the right blue.

UPPER ZONE C LIGHTING

Two (2), Whelen super-LED 360 degree beacons, model L31H*F, shall be installed on the rear upper corners of the apparatus, one on each side. The driver's side beacon shall be red and the passenger's side beacon shall be amber in color.

LOWER ZONE A LIGHTING

Two (2), Whelen M2W* LED lights shall be installed at the front of the apparatus, one on each side with a chrome flange. The light shall have colored LEDs and a colored lens.

The driver's side light shall be a red light, model M2WR. The passenger's side shall be a blue light, model M2WB.

LOWER ZONE B/ZONE D LIGHTING

The following perimeter lighting shall be installed in the lower B and D zones of the apparatus.

One (1) Whelen M2WR LED light shall be installed on the ***front passenger's side*** of the apparatus. The light shall have red LEDs and a red lens cover with a chrome flange.

One (1) Whelen M6R LED light shall be installed on the ***rear passenger's side*** of the apparatus. The light shall have red LEDs and a red lens cover with a chrome flange.

One (1) Whelen M2WR LED light shall be installed on the ***front driver's side*** of the apparatus. The light shall have red LEDs and a red lens cover with a chrome flange.

One (1) Whelen M6R LED light shall be installed on the ***rear driver's side*** of the apparatus. The light shall have red LEDs and a red lens cover with a chrome flange.

LOWER ZONE C LIGHTING

Two (2) Whelen LINV2* LED lights shall be installed on the lower, rear area of the apparatus.

The LINV2* includes a warning light and a puddle light. The driver's side warning light has six red LED lights and four white LED lights are installed below to work independently as a surface area illumination light. The passenger's side light shall have the same features except it shall be blue. The lights shall have a chrome flange.

BACK-UP CAMERA SYSTEM

A Hanscom K. #7211 back-up camera system shall be installed on the apparatus. The system shall include a 7” color monitor with audio located in the chassis cab and a rugged infrared color camera with audio located at the rear of the apparatus.

The back-up camera system shall be activated when the transmission is placed in reverse. The operator will also be able to override this signal by turning the monitor on in the cab.

PAINTING

After the apparatus body and components have been fabricated and assembled, the apparatus body shall be completely sanded and deburred for removal of sharp edges. The apparatus and components shall be metal prepped to provide a superior substrate for painting.

The apparatus body and components shall undergo a degreasing/cleaning process, starting with a clear, acidic liquid, designed to remove surface soils and oxidation. This process develops a light phosphate coating, which gives aluminum a superior base for good paint adhesion.

The apparatus body shall be painted a standard red.

BODY PAINT COLOR:	RED
PAINT BRAND:	PPG
PAINT NUMBER:	*****

After the cleaning process, a fast build epoxy primer shall be applied and sanded prior to the top finish coatings. The finish painting process shall consist of applying two (2), coats of high quality, 3.5 VOC polyurethane paint to maintain proper film thickness.

COMPARTMENT INTERIOR PAINT

All compartment interiors shall be painted with a multicolor splatter finish. The color shall be a white and medium gray splatter.

The finish offers exceptional durability for use in apparatus compartments. The finish is scuff resistant and chemical resistant.

SMOOTH, UNPAINTED TANK FINISH

The tank shall be black in color unless otherwise specified. The front, rear and sides of the tank shall be a smooth, natural black polypropylene finish.

Note: The top of the water tank will be textured.

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

All ¼" diameter and smaller screws and bolts shall be stainless steel with a powdered aluminum coating. This coating shall be bonded metallurgically to the stainless screws to prevent peeling and flaking. This coating is designed to reduce the potential for electrolysis and corrosion to occur where items are assembled and attached.

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BODY UNDERCOATING

The entire underside of the body shall be coated with a tough, pliable, rubberized coating for protection against abrasion and corrosion. This hybrid undercoating features a water based formula with quick dry capability to achieve early water and weather resistance.

The undercoating shall be applied prior to installation of the body onto the chassis to avoid spraying the product on air lines, cables, or other items that would cause normal maintenance to be hindered.

NFPA COMPLIANT REFLECTIVE STRIPING

Reflective striping shall be applied to the exterior of the apparatus in a manner consistent with NFPA; striping shall consist of a white Scotchlite 4" reflective stripe affixed to the exterior perimeter of the apparatus body and chassis cab.

A white reflective stripe shall also be applied to the interior of each chassis cab door and/or any equipment such as roll-out trays or frames that protrude beyond the body of the apparatus to indicate a hazard or obstruction.

An additional reflective stripe shall be mounted on the body rub rails. The color of the stripe shall be white unless otherwise specified.

REAR CHEVRON REFLECTIVE STRIPING

There shall be reflective chevron striping applied to the rear of the unit as required by NFPA standards.

At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retro-reflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees.

The striping shall consist of alternating red and fluorescent yellow retro-reflective stripes. Each stripe shall be 6" in width and shall be applied to the apparatus at a 45° angle.

BODY STRUCTURE LIMITED WARRANTY

Danko Emergency Equipment Company shall warrant the body structure of the apparatus to be free of defects in design and workmanship for a period of seven (7) years.

ELECTRICAL WARRANTY

Danko Emergency Equipment Company shall warrant to each original purchaser that the Danko supplied electrical equipment are sound and free of all defects of both materials and workmanship, for a period of two (2) years. The warranty shall ensure that the vehicle will be free from defects in the electrical harness and connections under normal use and service within the warranty period.

PAINTED METAL SURFACE WARRANTY

Danko Emergency Equipment Company shall warrant the completed apparatus to be free of blistering, peeling and any other adhesion defect caused by defective manufacturing methods or paint material selection for metal exterior surfaces for a period of five (5) years.

BASIC LIMITED WARRANTY

Danko Emergency Equipment Company shall warrant to each original purchaser that the apparatus is free of defects in material and workmanship for a period of one (1) year.

LETTERING/STRIPING WARRANTY

Danko Emergency Equipment Company shall warrant to each original purchaser that the apparatus lettering and/or striping shall be free of defects for a period of three (3) years.

STAINLESS STEEL PLUMBING WARRANTY

Danko Emergency Equipment Company shall warrant to each original purchaser that the apparatus stainless steel plumbing shall be free of defects for a period of ten (10) years.

MANUALS/DOCUMENTATION

There shall be one (1) 3-ring binder and one (1) electronic copy of the manufacturer operation and maintenance manual provided that covers the completed apparatus.

The manuals shall include chassis documentation, wiring diagrams, and any other documents or technical data referencing the apparatus. Also included shall be any manufacturers warranties and/or guarantees.

The manuals will include the NFPA recommended FAMA Fire Apparatus Safety Guide.

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EQUIPMENT

HARD SUCTION HOSE

Two (2), Kochek 2P601 6" x 10' section(s) of PVC suction hose with 6" NH long handle female by 6" NH rocker lug male couplings.

FOLDING TANK

One (1) Fol-Da-Tank model FDTA-2100 collapsible folding tank shall be supplied and stored on the apparatus as designated. The folding tank shall have a capacity of 2,100 gallons.

There shall be a 22 oz. vinyl liner with easy lift handles. The folding tank shall be yellow in color.

The frame shall be constructed of 1" x 1/8" wall aluminum square tubing with a snag free finish.

The folding tank shall come standard with one (1) quick release drain placed on the inside of the tank to allow water pressure to seal off the drain sleeve. A pull strap shall be provided for tank draining.

LADDER(S)

One (1), Duo-Safety series 900-A, 24' two-section solid beam aluminum ladder shall be supplied.

LADDER(S)

One (1), Duo-Safety series 775-A, 14' roof ladder featuring channel rail construction and prong feet shall be supplied.

LADDER(S)

One (1), Duo-Safety series 585-A, 10' aluminum one man load folding ladder with safety shoes shall be supplied.

PIKE POLE(S)

Two (2), Duo-Safety 10' fiberglass pike pole with a cadmium plated steel head and cast aluminum butt end. The pole to be permanent molded-in yellow color.

F R E I G H T L I N E R S P E C I F I C A T I O N P R O P O S A L

Vehicle Configuration

M2 106 CONVENTIONAL CHASSIS

2017 MODEL YEAR SPECIFIED

SET BACK AXLE - TRUCK

General Service

FIRE/EMERGENCY SERVICE

MEDIUM TRUCK 2 YEAR WARRANTY

EXPECTED FRONT AXLE LOAD: 14000 lbs

EXPECTED REAR DRIVE AXLE LOAD: 27000 lbs

EXPECTED GROSS VEHICLE CAPACITY: 41000 lbs

Engine

CUM ISL 350 HP @ 2000 RPM, 2200 GOV RPM, 1000 LB/FT @ 1400 RPM

Engine Equipment

2016 ONBOARD DIAGNOSTICS/2010 EPA/CARB/GHG14

NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER

DR 12V 275 AMP 40-SI BRUSHLESS PAD ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE

(2) ALLIANCE MODEL 1231, GROUP 31, 12 VOLT MAINTENANCE FREE 2250 CCA THREADED STUD BATTERIES WITH POSITIVE JUMP START POST

BATTERY BOX FRAME MOUNTED

WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN

POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DRIVER

CUMMINS TURBOCHARGED 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE

CUMMINS EXHAUST BRAKE INTEGRAL WITH VARIABLE GEOMETRY TURBO WITH ON/OFF DASH SWITCH

RH MTD HORIZONTAL AFTERTREATMENT ASSEMBLY

HORTON DRIVEMASTER ON/OFF FAN DRIVE

AUTOMATIC FAN CONTROL WITHOUT DASH SWITCH

CUMMINS SPIN ON FUEL FILTER

COMBINATION FULL FLOW/BYPASS OIL FILTER

1100 SQUARE INCH ALUMINUM RADIATOR

ANTIFREEZE TO -34F, ETHYLENE GLYCOL PRE-CHARGED SCA HEAVY DUTY COOLANT

GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT

CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES

ELECTRIC GRID AIR INTAKE WARMER

DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH

Transmission

ALLISON 3000 EVS AUTOMATIC TRANSMISSION WITH PTO

Transmission Equipment

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

PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED

TRANSMISSION PROGNOSTICS - ENABLED 2013

WATER TO OIL TRANSMISSION COOLER

TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK

SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)

Front Axle and Equipment

DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE

MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES

FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING

HALDEX AUTOMATIC FRONT SLACK ADJUSTERS

TRW TAS-85 POWER STEERING

Front Suspension

14,600# TAPERLEAF FRONT SUSPENSION

MAINTENANCE FREE RUBBER BUSHINGS

FRONT SHOCK ABSORBERS

Rear Axle and Equipment

27,000 LB FIRE/EMERGENCY SERVICE SINGLE REAR AXLE

IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING

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

DRIVER CONTROLLED TRACTION DIFFERENTIAL

MERITOR 16.5X7 P CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES

FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING

HALDEX GOLDSEAL LONGSTROKE 1-DRIVE AXLE SPRING PARKING CHAMBERS

HALDEX AUTOMATIC REAR SLACK ADJUSTERS

Rear Suspension

27,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD FOR FIRE/EMERGENCY

SPRING SUSPENSION - 1.50" AXLE SPACER

FORE/AFT CONTROL RODS

Brake System

AIR BRAKE PACKAGE

WABCO 4S/4M ABS WITH TRACTION CONTROL & ESC

STANDARD AIR SYSTEM PRESSURE PROTECTION SYSTEM

BW AD-9 BRAKE LINE AIR DRYER WITH HEATER

CUSTOM STEEL AIR BRAKE RESERVOIRS

BW DV-2 AUTO DRAIN VALVE WITH HEATER - WET TANK

Electrical Connections

UPGRADED CHASSIS MULTIPLEXING UNIT

UPGRADED BULKHEAD MULTIPLEXING UNIT

Wheelbase & Frame

(216 INCH) WHEELBASE

11/32X3-1/2X10-15/16 INCH STEEL FRAME 120KSI

(75 INCH) REAR FRAME OVERHANG

Chassis Equipment

THREE-PIECE 14 INCH CHROME STEEL BUMPER WITH COLLAPSIBLE ENDS AND CUTOUT FOR SPEAKER

FRONT TOW HOOKS - FRAME MOUNTED

FENDER & FRONT OF HOOD MTD FRONT MUDFLAPS

GRADE 8 THREADED HEX HEADED FRAME FASTENERS

Fuel Tanks

50 GALLON POLISHED ALUMINUM FUEL TANK

6 GALLON DIESEL EXHAUST FLUID TANK

ALLIANCE FUEL FILTER/WATER SEPARATOR WITH HEATED BOWL

EQUIFLO INBOARD FUEL SYSTEM

Tires

GOODYEAR G661 HSA 12R22.5 16 PLY RADIAL FRONT TIRES (MATCH MARKED)

GOODYEAR G182 12R22.5 16 PLY RADIAL REAR TIRES

Hubs

CONMET PRESET PLUS IRON FRONT HUBS

CONMET PRESET PLUS IRON REAR HUBS

Wheels

22.5X8.25 10-HUB PILOT POLISHED ALUMINUM DISC FRONT WHEELS

22.5X8.25 10-HUB PILOT POLISHED ALUMINUM DISC REAR OUTER WHEELS

Cab Exterior

106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL AIR RIDE CAB WITH COMPOSITE SUN VISOR

NFPA COMPLIANT EXTERIOR GRAB HANDLES

HOOD MOUNTED CHROMED PLASTIC GRILLES

FIBERGLASS HOOD WITH INSULATION

DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS

DUAL ELECTRIC HORNS

INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZELS & DAYTIME RUNNING LIGHTS

LED AERODYNAMIC MARKER LIGHTS

DUAL 102” WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE

LH AND RH 8 INCH BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS

63X14 INCH TINTED REAR WINDOW

TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS

RH/LH POWERED WINDOWS & DOOR LOCKS

TINTED WINDSHIELD

2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED

Cab Interior

OPAL GRAY VINYL INTERIOR

WOODGRAIN INSTRUMENT PANELS

MOLDED PLASTIC DOOR PANEL WITH ALUMINUM KICKPLATES LOWER DOORS

BLACK MATS WITH PREMIUM INSULATION

FORWARD ROOF MOUNTED CONSOLE WITH UPPER STORAGE COMPARTMENTS WITHOUT NETTING

IN DASH STORAGE BIN

AM/FM/WB DASH MTD RADIO WITH BLUETOOTH AND MICROPHONE, USB PORT, (2) AUXILIARY INPUTS

(2) CUP HOLDERS LH AND RH DASH

HEATER, DEFROSTER AND AIR CONDITIONER

MAIN HVAC CONTROLS W/ RECIRCULATION SWITCH

SOLID-STATE CIRCUIT PROTECTION AND FUSES

12V NEGATIVE GROUND ELECTRICAL SYSTEM

DOME LIGHT WITH 3-WAY SWITCH ACTIVATED BY LH AND RH DOORS

(1) 12 VOLT POWER SUPPLY IN DASH

SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT NFPA COMPLIANT

SEATS INC 911 UNIVERSAL SERIES HIGH BACK NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE NFPA COMPLIANT

LH AND RH INTEGRAL DOOR PANEL ARMRESTS

GRAY VINYL SEAT COVERS WITH GRAY CORDURA CLOTH BOLSTERS AND HEADRESTS

3 POINT HIGH VISIBILITY ORANGE RETRACTOR DRIVER AND RH FRONT PASSENGER SEAT BELTS WITH NFPA COMPLIANT SENSOR AND DASH HARNESS

ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN

4-SPOKE 18 INCH STEERING WHEEL

DRIVER AND PASSENGER INTERIOR SUN VISORS

Instruments & Controls

BLACK GAUGE BEZELS

LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM

2 INCH PRIMARY AND SECONDARY AIR PRESSURE GAUGES

ENGINE COMPARTMENT MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS

ELECTRONIC CRUISE CONTROL WITH SWITCHES IN LH SWITCH PANEL

ICU3S, 132X48 DISPLAY WITH DIAGNOSTICS, 28 LED WARNING LAMPS AND DATA LINKED

FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING

2 INCH ELECTRIC FUEL GAUGE

ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE

2 INCH TRANSMISSION OIL TEMPERATURE GAUGE

ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY

ELECTRIC ENGINE OIL PRESSURE GAUGE

ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE

ELECTRONIC 3000 RPM TACHOMETER

IGNITION SWITCH CONTROLLED ENGINE STOP

DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY

SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY

MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH

ONE VALVE PARKING BRAKE SYSTEM WITH DASH VALVE

SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD IN HANDLE

INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING STOP LAMPS

NO MISCELLANEOUS GAUGES

Paint Design

ONE SOLID CUSTOM BASE/CLEAR COAT RED COLOR

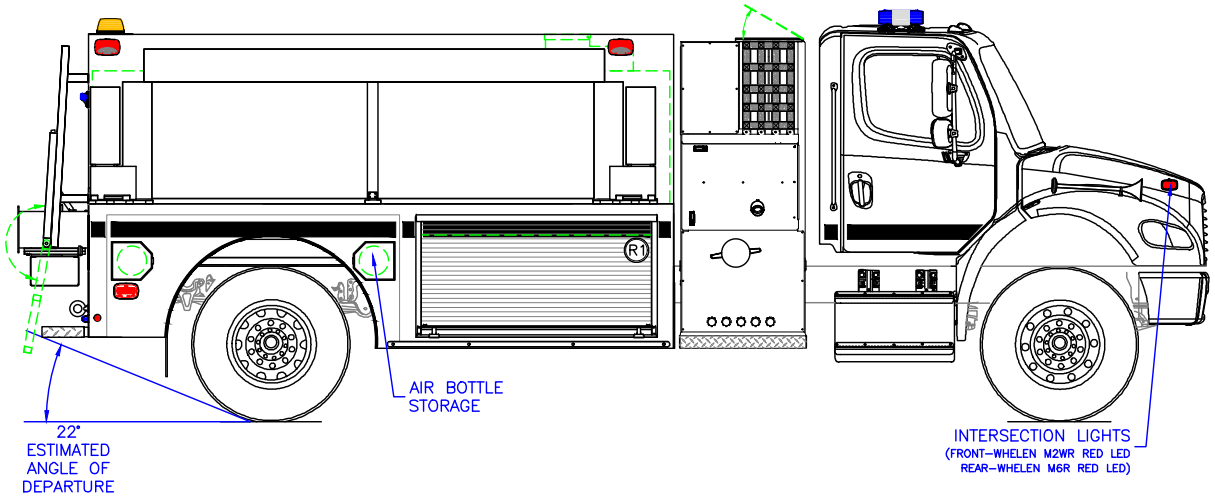
BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT

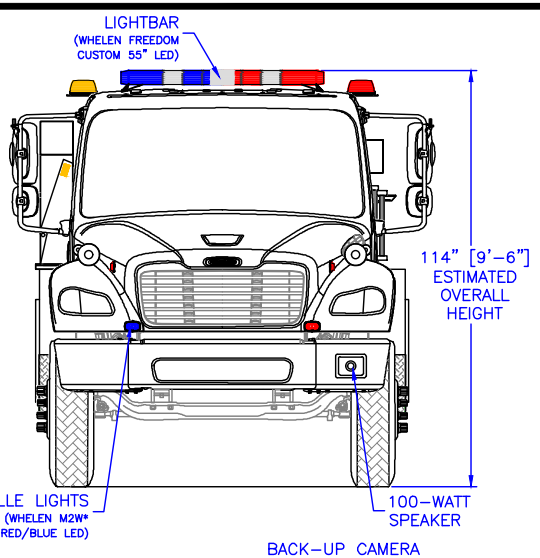
T O T A L V E H I C L E S U M M A R Y

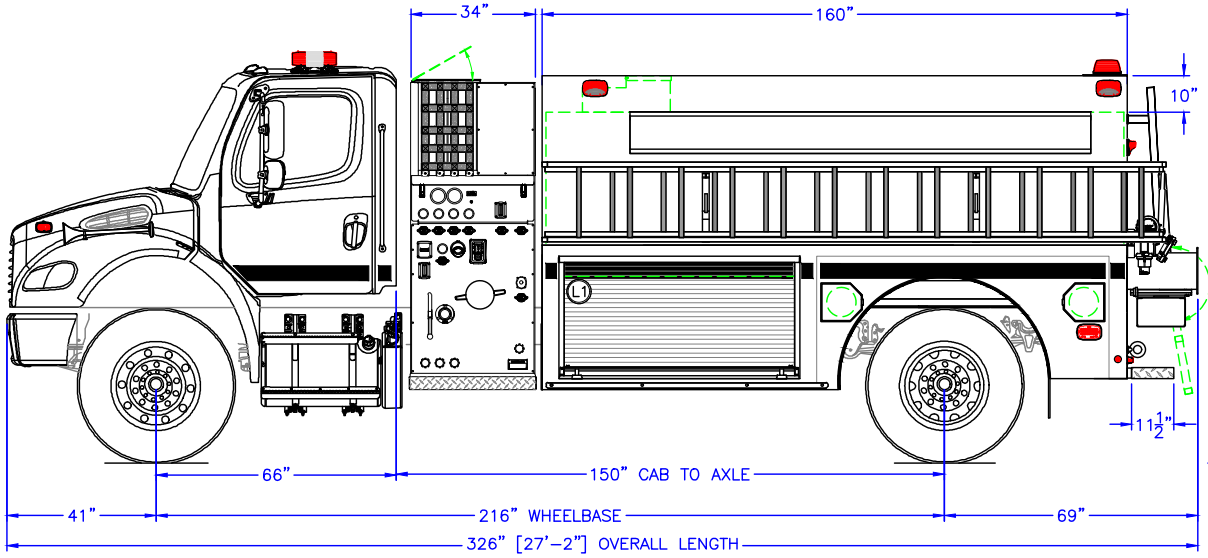
Weight Summary

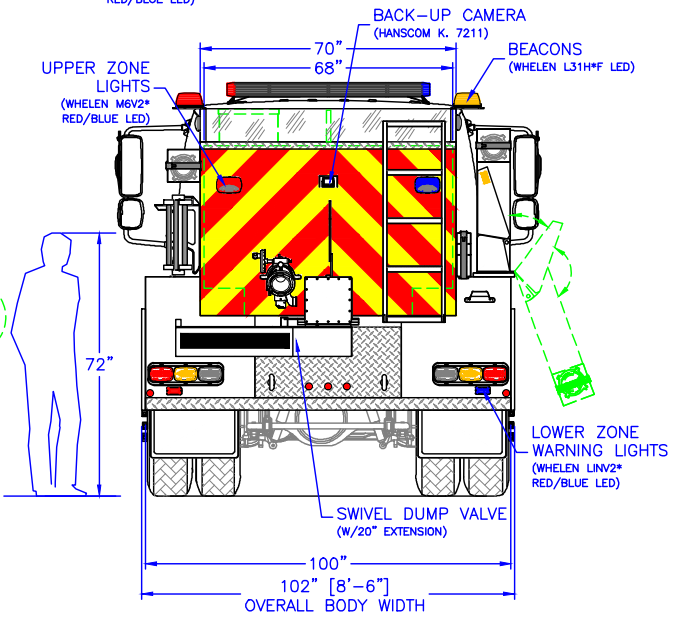
	Weight Front	Weight Rear	Total Weight
Factory Weight[+]	7353 lbs	4542 lbs	11895 lbs

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









COMPT.	OPENING	DEPTH UPPER	DEPTH LOWER
L1	63W X 28H	21	26
R1	63W X 28H	21	26

TOTAL COMPARTMENT CAPACITY 48 CU FT

BUILD DRAWING

2,000 GALLON TANKER/PUMPER

DANKO EMERGENCY EQUIPMENT CO.
SNYDER, NEBRASKA www.DANKO.net

PUMP: Waterous 1250 CSPA Pump
TANK: 2,000/20 Gallon Poly
FOAM: Aquis 2.5
BODY: 160" Aluminum Body
CHASSIS: Freightliner M2 106

ID: T–0336

DRAWN BY: CTK

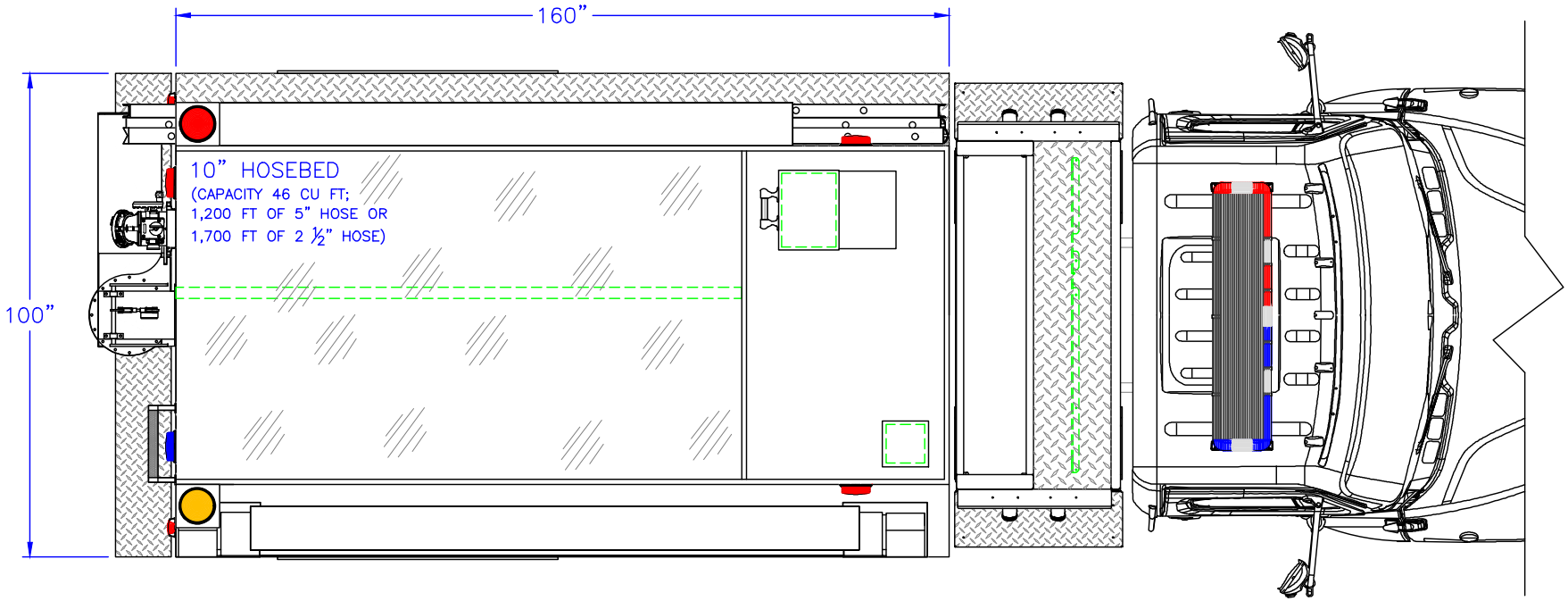
SCALE: BEST FIT

FILE NAME: Clients\Tanker–PTO–M\T–0336 Stock Redone

DANKO STOCK
T–0336

DIMENSIONS SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE AS MAY BE FOUND NECESSARY DURING CONSTRUCTION. MINOR DETAILS MAY NOT BE SHOWN TO RETAIN CLARITY WITHIN THE DRAWING. THE DRAWING IS FOR REFERENCE PURPOSES ONLY. SPECIFICATIONS SHALL BE THE FINAL AUTHORITY OF WHAT IS SUPPLIED ON THE APPARATUS.

DATE: 10/14/2016



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