



***SPECIFICATIONS***  
***ON A***  
***DRY CHEMICAL UNIT***

## **REPRESENTATIVE DRAWINGS**

A set of representative drawings have been provided with the proposal. The drawings include the following street-side, curb-side, apparatus front and apparatus rear views as specified.

## **APPROVAL DRAWINGS**

A complete set of final approval drawings derived from the specifications shall be provided and signed by the purchaser before any construction begins.

## **POST CONTRACT CONFERENCE**

A post contract conference between the representatives of the bidder and the manufacturer shall be scheduled immediately post award of contract.

The conference shall be held not later than 30 days after notification at location specified by the committee.

## **TRAINING**

The manufacturer shall provide 3 days of training on the use, care and maintenance of the unit and its components. This training shall be conducted at the Fire Department facility at 11637 Chester Rd Cincinnati Ohio 45246 and another location chosen by the Fire department. Agent shall be used each day of training. The unit shall be recharged and refilled after training is complete.

## **2012 FORD F-550 CHASSIS**

### **4X4 SD CREW CAB 176" WB DRW XL (W5H)**

#### **POWERTRAIN**

Powerstroke 6.7L V-8 OHV direct diesel injection 32 valve intercooled turbo diesel engine \* 357 amp dual alternator \* 750 amp (total) 78 amp hours (Ah) (total) battery dual batteries with run down protection \* Engine block heater \* 6-speed electronic SelectShift automatic transmission with overdrive, lock-up, driver selection \* Part-time four-wheel drive with electronic transfer case shift, auto locking hubs \* Driveline traction control \* 4.10 axle ratio \* Stainless steel exhaust

#### **STEERING AND SUSPENSION**

Hydraulic power-assist re-circulating ball steering \* 4-wheel disc brakes with front and rear vented discs \* Firm ride suspension \* Mono-beam non-independent front suspension \* Front anti-roll bar \* Front coil springs \* HD front shocks \* Rigid rear axle \* Rear leaf suspension \* Rear anti-roll bar \* HD rear leaf springs \* HD rear shocks \* Front and rear 19.5" x 6.00" argent steel wheels \* LT225/70SR19.5 BSW AS front and rear tires

#### **SAFETY**

4-wheel anti-lock braking system \* Dual airbags, seat mounted driver and passenger side-impact airbags, curtain 1<sup>st</sup> and 2nd row overhead airbags \* Front height adjustable seatbelts \* SecuriLock immobilizer, panic alarm, security system

#### **COMFORT AND CONVENIENCE**

Air conditioning, underseat ducts \* AM/FM stereo, clock, seek-scan, 2 speakers, fixed antenna \* Power door locks with 2 stage unlock, keyfob (all doors) keyless entry \* 2 12V DC power outlets, retained accessory power \* Analog instrumentation display includes tachometer, oil pressure gauge, engine temperature gauge, turbo/supercharger boost gauge, transmission fluid temp gauge, engine hour meter, exterior temp, systems

monitor, trip odometer \* Warning indicators include oil pressure, engine temperature, battery, lights on, key, low fuel, door ajar, service interval, brake fluid \* Steering wheel with tilt and telescopic adjustment \* Power front and rear windows with light tint, driver 1-touch down \* Variable intermittent front windshield wipers \* Passenger side vanity mirror \* Day-night rearview mirror \* Interior lights include dome light with fade, front and rear reading lights, illuminated entry \* Full overhead console with storage, glove box, front cupholder, instrument panel bin, driver and passenger door bins, rear door bins \* Upfitter switches

### **SEATING AND INTERIOR**

Seating capacity of 6 \* 40-20-40 split-bench front seat with adjustable head restraints, center armrest with storage \* 4-way adjustable driver seat includes lumbar support \* 4-way adjustable passenger seat \* 60-40 folding rear split-bench seat with FlexFold flip forward cushion/seatback, 3 adjustable rear head restraints \* Vinyl faced front seats with vinyl back material \* Vinyl faced rear seats with carpet back material \* Full cloth headliner, full vinyl/rubber floor covering, plastic/rubber gear shift knob, chrome interior accents

### **EXTERIOR FEATURES**

Side impact beams, front license plate bracket, fully galvanized steel body material \* Black fender flares \* Black window moldings, black front windshield molding \* Black door handles \* Black grille \* 4 doors \* Trailer harness \* Driver and passenger power remote black heated convex spotter folding manual extendable trailer outside mirrors with turn signal indicators \* Front black bumper with front tow hooks \* Aero-composite halogen headlamps \* Additional exterior lights include cab clearance lights, underhood light, remote activated perimeter/approach lights \* Clearcoat monotone paint \* Ambulance

### **DIMENSIONS AND CAPACITIES**

Output ..... 300 hp @ 2,800 rpm  
 Torque ..... 660 lb.-ft. @ 1,600 rpm  
 1st gear ratio ..... 3.974  
 2nd gear ratio ..... 2.318  
 3rd gear ratio ..... 1.516  
 4th gear ratio ..... 1.149  
 5th gear ratio ..... 0.858  
 6th gear ratio ..... 0.674  
 Reverse gear ratio ..... 3.128  
 Curb weight ..... 8,419 lbs.  
 GVWR ..... 18,000 lbs.  
 Front GAWR ..... 7,000 lbs.  
 Rear GAWR Weight ..... 13,660 lbs.  
 Payload ..... 9,676 lbs.  
 Front curb weight ..... 5,162 lbs.  
 Rear curb weight ..... 3,257 lbs.  
 Front axle capacity ..... 7,000 lbs.  
 Rear axle capacity ..... 13,660 lbs.  
 Front spring rating ..... 7,000 lbs.  
 Rear spring rating ..... 13,660 lbs.  
 Front tire/wheel capacity ..... 7,500 lbs.  
 Rear tire/wheel capacity ..... 15,000 lbs.  
 Towing capacity ..... 16,000 lbs.  
 5th-wheel towing capacity ..... 16,500 lbs.  
 Front legroom ..... 41.1 "

Rear legroom .....	42.1 "
Front headroom .....	40.7 "
Rear headroom .....	40.8 "
Front hiproom .....	67.6 "
Rear hiproom .....	67.6 "
Front shoulder room .....	68.0 "
Rear shoulder room .....	68.0 "
Passenger area volume .....	133.5 cu.ft.
Length .....	261.9 "
Body width .....	95.2 "
Body height .....	80.8 "
Wheelbase .....	176.0 "
Cab to axle .....	60.0 "
Axle to end of frame .....	47.6 "
Front tread .....	74.8 "
Rear tread .....	74.0 "
Turning radius .....	25.8 '
Fuel tank .....	40.0 gal.

**STANDARD EQUIPMENT 2012 FORD F-550 CHASSIS**

**POWERTRAIN**

Triton 6.8L V-10 SOHC SMPI 30 valve engine \* 155 amp HD alternator \* 750 amp 78 amp hours (Ah) HD battery with run down protection \* Transmission oil cooler \* 5-speed electronic SelectShift automatic transmission with overdrive, lock-up, driver selection \* Part-time four-wheel drive with manual transfer case shift, manual locking hubs \* Driveline traction control \* 4.88 axle ratio \* Stainless steel exhaust

**STEERING AND SUSPENSION**

Hydraulic power-assist re-circulating ball steering \* 4-wheel disc brakes with front and rear vented discs \* Firm ride suspension \* Mono-beam non-independent front suspension \* Front anti-roll bar \* Front coil springs \* HD front shocks \* Rigid rear axle \* Rear leaf suspension \* Rear anti-roll bar \* HD rear leaf springs \* HD rear shocks \* Front and rear 19.5" x 6.00" argent steel wheels \* LT225/70SR19.5 BSW AS front and rear tires

**SAFETY**

4-wheel anti-lock braking system \* Dual airbags, seat mounted driver and passenger side-impact airbags, curtain 1st and 2nd row overhead airbags \* Front height adjustable seatbelts

**COMFORT AND CONVENIENCE**

Air conditioning, underseat ducts \* AM/FM stereo, clock, seek-scan, 2 speakers, fixed antenna \* 2 12V DC power outlets \* Analog instrumentation display includes tachometer, oil pressure gauge, engine temperature gauge, transmission fluid temp gauge, engine hour meter, exterior temp, systems monitor, trip odometer \* Warning indicators include oil pressure, engine temperature, battery, lights on, key, low fuel, door ajar, brake fluid \* Steering wheel with tilt and telescopic adjustment \* Manual front and rear windows with light tint \* Variable intermittent front windshield wipers \* Passenger side vanity mirror \* Day-night rearview mirror \* Interior lights include dome light with fade, front and rear reading lights \* Full overhead console with storage, glove box, front cupholder, instrument panel bin \* Upfitter switches

## **SEATING AND INTERIOR**

Seating capacity of 6 \* 40-20-40 split-bench front seat with adjustable head restraints, center armrest with storage \* 4-way adjustable driver seat includes lumbar support \* 4-way adjustable passenger seat \* 60-40 folding rear split-bench seat with FlexFold flip forward cushion/seatback, 3 adjustable rear head restraints \* Vinyl faced front seats with vinyl back material \* Vinyl faced rear seats with carpet back material \* Full cloth headliner, full vinyl/rubber floor covering, plastic/rubber gear shift knob, chrome interior accents

## **EXTERIOR FEATURES**

Side impact beams, front license plate bracket, fully galvanized steel body material \* Black fender flares \* Black side window moldings, black front windshield molding \* Black door handles \* Black grille \* 4 doors \* Trailer harness \* Driver and passenger manual black folding manual extendable trailer outside mirrors \* Front black bumper with front tow hooks \* Aero-composite halogen headlamps \* Additional exterior lights include cab clearance lights, underhood light \* Clearcoat monotone paint

## **WARRANTY**

Basic 36 month/36,000 miles Powertrain 60 month/60,000 miles  
Corrosion Perforation 60 month/unlimited mileage Roadside Assistance 60 month/60,000 miles

## **DIMENSIONS AND CAPACITIES**

Output 362 hp @ 4,750 rpm Torque 457 lb.-ft. @ 3,250 rpm  
1st gear ratio 3.110 2nd gear ratio 2.220  
3rd gear ratio 1.550 4th gear ratio 1.000  
5th gear ratio 0.710 Reverse gear ratio 2.880  
Curb weight 7,501 lbs. GVWR 18,000 lbs.  
Front GAWR Weight 5,600 lbs. Rear GAWR Weight 13,660 lbs.  
Payload 10,499 lbs. Front curb weight 4,256 lbs.  
Rear curb weight 3,245 lbs. Front axle capacity 7,000 lbs.  
Rear axle capacity 13,660 lbs. Front spring rating 5,600 lbs.  
Rear spring rating 13,660 lbs. Front tire/wheel capacity 7,500 lbs.  
Rear tire/wheel capacity 15,000 lbs. Towing capacity 16,000 lbs.  
5th-wheel towing capacity 17,300 lbs. Front legroom 41.1 "  
Rear legroom 42.1 " Front headroom 40.7 "  
Rear headroom 40.8 " Front hiproom 67.6 "  
Rear hiproom 67.6 " Front shoulder room 68.0 "  
Rear shoulder room 68.0 " Passenger area volume 133.5 cu.ft.  
Length 261.9 " Body width 93.9 "  
Body height 80.8 " Wheelbase 176.0 "  
Cab to axle 60.0 " Axle to end of frame 47.6 "  
Front tread 74.8 " Rear tread 74.0 "  
Turning radius 25.8 ' Fuel tank 40.0 gal.

## **SELECTED OPTIONS 2012 FORD F-550 CHASSIS**

### **4X4 SD CREW CAB 176" WB DRW XL (W5H)**

#### **VEHICLE SNAPSHOT**

**Engine:** 6.7L OHV Power Stroke Diesel V8 B20

**Transmission:** TorqShift 6-Speed Auto w/OD

**Rear Axle Ratio:** 4.10  
**GVWR:** 18,000 lbs Payload Package  
**W5H Base Vehicle Price (W5H)**

## PACKAGES

### XLT Package

Exterior:

Includes; Bumper – front, chrome \* Grille – chrome surround w/medium platinum insert  
\* Mirrors – manually telescoping trailer tow w/power heated glass, integrated clearance lights & 2-way fold  
\* Wheels – F-350 SRW – 17" cast-aluminum \* Windows – Rear Privacy Glass

Interior:

Includes; \* Air conditioning vents – black w/chrome ring \* AudioAuxiliary audio input jack Audio – AM/FM stereo w/digital clock/single-CD/MP3 player & 4 speakers \* Cruise control (steering wheel-mounted) \* Door-trim – soft armrest, grab handle, upper & lower map pockets & reflector \* Floor covering – color-coordinated full carpet \* Floor mats – color-coordinated carpet \* Power equipment – driver window, door-locks & windows w/backlit switches & accessory delay \* Seat – front, high-series cloth 40/20/40 split bench – 20% center under-seat storage, w/center armrest, cupholder and storage \* 4-way adjustable driver/passenger headrests \* Sun visors – Color-coordinated vinyl, single driver w/covered mirror, single passenger w/covered mirror \* Trailer Brake Controller

Safety/Security:

Includes; \* MyKey® \* Remote keyless-entry & perimeter anti-theft alarm \* SecuriLock® Anti-Theft Ignition

## EMISSIONS

### 425 50 State Emissions System

### POWERTRAIN

99T **Engine: 6.7L OHV Power Stroke Diesel V8 B20**

*200-Amps Extra Heavy-Duty Alternator; (X41) 4.10 Axle Ratio; Dual 78 AH Batteries. Includes clean idle decal and intelligent oil life minder. Torque: 660 ft.lbs. @ 1600 rpm.*

44W **Transmission: TorqShift 6-Speed Auto w/OD**

*Includes SelectShift.*

X41 **4.10 Axle Ratio**

STDGV **GVWR: 18,000 lbs Payload Package**

### WHEELS & TIRES

TFB **Tires: 225/70Rx19.5G BSW AS (6)**  
64Z **Wheels: 19.5" Argent Painted Steel (6)**

## **SEATS & SEAT TRIM**

**A HD Vinyl 40/20/40 Split Bench Seat**

*Includes driver side manual lumbar support, center armrest, cupholder and storage.*

## **OTHER OPTIONS**

**PAINT Monotone Paint Application**

**176WB 176" Wheelbase/60" Cab to Axle**

**98R Operator Commanded Regeneration (OCR)**

**67A Dual Alternators (Total 357-Amps)**

**587 Radio: ETR AM/FM Stereo w/Digital Clock**  
*Includes 2-speakers.*

## **FLEET OPTIONS**

**47A Ambulance Prep Package (LPO)**

*(98R) Operator Commanded Regeneration (OCR); (67A) Dual Alternators (Total 357-Amps). Incomplete vehicle package - requires further manufacture and certification by a final stage manufacturer. Ford vehicles are suitable for producing ambulances only if equipped with the Ford Ambulance Prep Package. In addition, Ford urges ambulance manufacturers to follow the recommendations of the Ford Incomplete Vehicle Manual and the Ford Truck Body Builders Layout Book (and pertinent supplements). Using a Ford vehicle without the Ford Ambulance Package to produce an ambulance voids the Ford warranty. NOTE: Stationary Elevated Idle Control (SEIC) has been integrated into the engine control module.*

## **INTERIOR COLORS FOR : PRIMARY W/XL**

AS Steel OPT

## **PRIMARY COLORS FOR: PRIMARY W/XL**

F1 RED

## **ACCESSORIES AND AFTERMARKET OPTIONS**

NFPA 2601 Data Recorder/Seatbelts

*Intermotive 5-position seat belt monitoring system w/ VDR for 2011 Ford F250-F550 Superduty Crew Cabs*

## **CHASSIS MODIFCATIONS.**

### **TIRE PRESSURE MONITORING SYSTEM**

A valve stem mounted tire pressure monitoring system shall be provided on the chassis. The system shall monitor the tire pressure and provide a visual notification of low air pressure via LED indicator.

### **CHASSIS STEPS**

There shall be a set of aluminum tread-brite running boards installed on the chassis. The running boards shall be constructed from .125" NFPA tread-brite and braced or supported in no less than four places along the cab.

The running boards shall extend down the side the cab and provide a stepping surface for both the front and rear door openings.

The steps shall be of a comfortable height for entering or leaving the cab. The steps shall be so arranged so that a fireperson wearing heavy boots and turnout gear can easily gain access to all cab doors.

### **REAR TOW EYES**

Rear tow eye assemblies shall be mounted at rear center of apparatus. They must be capable to with stand the requirements of towing (not lifting) the apparatus without damage.

### **NFPA 2601 SEATING**

The front 40/20/40 seat and factory rear bench seat shall be supplied with seatbelt warning system sensors as well as seat sensors to work in conjunction with the Vehicle data recorder and seatbelt warning system. The factory center console/seat shall be removed to make room for a center console to be installed by apparatus manufacturer.

The factory seatbelts shall be removed and replaced with flame red NFPA complaint belts

Seats and seatbelts to be installed in accordance with and meet requirements of Ford Motor Company.

### **VEHICLE DATA RECORDER**

The chassis shall be equipped with a Vehicle Data Recorder system (VDR). The VDR system shall be designed to provide a recorded history of critical chassis operations at specified intervals, and then store the record of these operations for a set period of time. The VDR shall record the following information:

\*Time \* Date \* Vehicle Speed \*Acceleration Deceleration Engine Speed \* Engine Throttle Position \*ABS Event \* Seat Occupied Status \* Seat Belt Status \* Master Optical Warning Device Switch Position

In accordance with NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

### **SEAT BELT WARNING**

The vehicle shall be equipped with a seat belt warning system. Each seating position shall be integrated into an on board monitoring system that shall provide visual and audible warnings when any seat is occupied (sixty pounds minimum) and the corresponding seat belt remains unfastened when the park brake is released.

Once activated, the visual and audible indicators shall remain active until all occupied seats have the seat belts fastened. The dash shall include a display indicating the occupancy of each seat.

### **LABELS**

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

A permanently engraved plate shall be installed on or near the fuel fill to designate the chassis fuel type.

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

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



A label shall be 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.

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

A label shall be provided in the cab made visible to everyone in the cab "warning" that "Helmets are not to be worn in cab and safely secured".

### **REAR MUD FLAPS**

There shall be a single rear anti-spray black mud flaps shall be installed under the rear body.

### **CONSOLE**

There shall be a custom aluminum console supplied and installed between the two front seats. It shall be constructed of .125" aluminum and it shall be sized accordingly. The entire console shall be painted with a rubberized gray paint for a durable protective finish.

The top shall be divided into two sections. The front half shall be designed for mounting of siren head, switch panel, joystick for turret, and customer radios, the rear half shall reveal a large open storage area for binders and other supplies. The front of the console shall feature a 45 degree raised panel for mounting the switches. Switches shall feature a backlit legend for best visibility.

### **BODY CONSTRUCTION**

The entire body is to be modular in design, it shall be fully capable of being removed and remounted on another chassis.

The body shall be constructed from aluminum, fully welded, with no rivets. The roof and wall beams shall be MIG welded to body exterior panels. All dissimilar metals shall have a barrier material between them to prevent electrolysis.

All exterior panels shall be 5052-H34 corrosion resistant aluminum.

Welds, which are visible, shall be either ground smooth, cleaned or power wire brushed. All welds whether seen or not shall be of good craftsmanship, pleasing appearance. We are stating that we want Fire Truck quality workmanship not standard delivery practices.

All aluminum body parts are to be welded for unitized construction to give maximum strength throughout the body. The use of adhesive as a structural fastening system is not acceptable.

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.

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

The overall body construction and shelf support shall be welded. The body shall have squared corners with no tapering.

The body sides shall be .160" aluminum sheet walls. The header walls, and partitions forming and dividing the compartments, plus the compartment floors shall be of a .160" aluminum of 5052-H34 alloy construction.

Compartment floors shall be properly supported, and capable sustaining up to a five hundred (500) pound load.

The roof sheet shall be of .125" aluminum tread-brite; 3004-H14 alloy. The center section of the roof over the cargo area shall be bolted in place for future removal. Roof shall be sealed and weather tight.

All compartments shall be of sweep-out type with no lip at bottom edge. The compartment floors shall be raised 1" above the lower sill to prevent water from entering the bottom of the opening. Each compartment shall be fitted with a drain and located in such a manner as to minimize or eliminate water from entering.

Compartment interiors walls shall remain unpainted aluminum finish. The aluminum finish walls shall be easier to maintain, reflect light better to allow you better visibility, and prevent the masking of questionable workmanship with interior coatings.

P-1000 aluminum unistrut, shall be welded permanently to the side bay walls to providing an adjustable mounting track for shelving and trays. The unistrut is to be continuous from the top to the bottom of the compartment opening and be provided with the necessary fasteners.

The body must contour around the rear wheel in such a fashion to give the body a pleasing appearance. The wheel wells shall have a full poly wheel well liner installed.

The body shall consist of a full length "skirt" that shall extend the rear wheel well to the end of the body. The rear of the body shall feature a rear apron around the rear to enclose the back of the body. The apron shall be 5052 .160 smooth aluminum for mounting DOT lights and providing a surface for the rear NFPA "Chevron" striping.

All exterior surface areas designated for stepping or standing shall be punch raised to provide slip resistance when stepping or walking on as outlined in the latest NFPA 1901.

There shall be a series of compartments provided in the apparatus body. The compartments shall be integrated into the body construction and not add on commercial box.

Body shall be an aluminum utility body approximately 114 inches long by 96 inches wide with a reinforced bulkhead.

### **GRAB RAILS**

Two (2) handrails of 1 ¼" diameter aluminum extrusion anti-slip grip, shall be mounted in mutually agreed locations to assist climbing on top of the platform. Handrail shall meet or exceed the National Fire Protection Associations Pamphlet 1901.

### **UNDERCOATING**

After the apparatus has been painted, the entire undercarriage of the cab chassis and trailer frame and body shall be spray coated with an undercoating.

Coating shall not be applied to drive-line components or frame-mounted components, except brackets or permanently attached equipment.

### **COMPARTMENTATION**

A series of body compartments shall be provided as follows:

There shall be one compartment located behind the cab and ahead of the rear wheels on each side. The compartment shall be transverse and extend across full width of the body. Compartment dimensions shall be 24" wide x 60" high x 24" deep lower and fully transverse upper.

This compartment shall have a slide out tray capable of sliding out either side of the vehicle. This slide out tray shall be capable of holding 500 pounds as a minimum.

### **ROLL UP DOORS**

The compartment doors shall be of the type that rolls up on themselves. The door shall have an adjustable tubular type counter balance which assures easy lifting and lowering of the compartment doors while eliminating the risk of accidental closing.

Doors shall be front roll up style to maximize upper compartment storage.

Guide channels shall be one-piece aluminum extrusions, which have no obstructions to bind the doors. Tracks shall have a replaceable side seal that shall inhibit water and dust from intruding into the compartments.

Guide channels on either side of door shall be provided with UV resistance rubber side seals with flocking to provide maximum resistance to water ingress on either side of door.

Door slats shall have 1.3 inch face height and be of double walled extruded aluminum, 0.31 deep and 0.038 nominal wall thickness, and with a concave rear surface. Slats shall have interlocking joint knuckle to prevent intrusion or tampering by sharp objects.

Door slat joints shall include dual durometer extruded synthetic spacer seal to provide maximum water resistance to door face and the smoothest possible operation. Slats shall be aligned by interlocking end caps made of engineering plastic that shall prevent slats from wandering and binding in guide channels.

Bodies without integral drip rail construction each door shall feature an overhead drip rail with UV resistant top seal shall be provided to span top of door opening, seal shall be of single point contact wiper type or optional non contact 2 piece design, per customer request.

Latch system to be either an extruded aluminum (C-2000 type) or optional 3/4" dia. stainless steel handle bar, extending the full width of the door and operable by one hand.

Latch bar shall include anti slip feature in the form of ribbing on the underside of the extruded handle version, and a knurled section of the 3/4" dia. bar on the stainless handle bar version.

Handle bar type latch shall have a hand clearance of 1.25 inches for use with heavy gloved hands.

A 2 in. wide shelf shall be provided to provide greatest possible gripping and leverage surface when lifting or lowering door. Shelf shall have anti slip ribbing to aid in closing the door.

Handle bar assembly shall have UV resistant rubber compression seal along bottom to provide maximum water resistance at bottom of door.

Door curtain shall have a clip and strap system connecting the curtain to the spring assist roller tube for maximum ease of installation / service.

Spring assist roller tube shall be 4 in. dia. aluminum tubing and internally lubricated, pre tensioned torsion spring, and shall assist in lifting the door, and retaining it in the open position.

Door curtain guide channels on both sides of door shall be of extruded aluminum with both side attaching and front cosmetic flanges incorporated into design.

Doors shall be available in an anodized satin finish.

### **HEAVY DUTY SLIDE TRAY – DUAL DIRECTION**

There shall be one (1) heavy-duty dual direction slide tray installed in specified compartment, as directed by the fire department.

Tray is to be of .190" smooth aluminum with press formed flanges of 2" on all four sides.

Tray dimension be sized to accommodate the specified compartment for which it is to be mounted.

Tray slides shall use heavy steel rail construction, and stainless steel ball bearings. Tray shall extend outward of the compartment at least 70 percent of the tray length, both directions and shall be able to support up to a minimum of 500 lbs. of distributed weight.

### **SKID UNIT COVER**

There shall be a structure built over the skid unit having sides and a roof capable of supporting 750 pounds. The side skin as well as the roof shall be removable for easy access to service the skid unit as needed. This enclosure shall be painted RED and the top covered in Diamond Plate, there shall be a slight crown in the roof to provide for water runoff.

### **12 VOLT WIRING**

#### **GENERAL REQUIREMENTS:**

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.

The 12-Volt DC electrical system shall controlled by an industry proven electrical system.

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.

Clearance and marker lights shall be installed to comply with the NFPA and all Federal standards for highway vehicles. Lights are grommet mounted shock resistant sealed marker lamps series / or sealed LED series marker lamps.

Reflectors shall be installed on the apparatus in compliance with the Federal Motor Vehicle Safety Standards and NFPA 1901.

### **WIRING REQUIREMENTS:**

The complete 12-volt wiring system and electrical appliances shall meet NFPA 1901 minimum standards as well as standard automotive practices throughout its installation in the apparatus. The system shall comply with all the appropriate SAE recommended practices such as J1939 and/or J1708.

All apparatus builder supplied DC power conducting wiring (excluding battery cables) shall be GXL high temperature (250 degrees minimum) type, color and number coded and imprinted with circuit function every 4 inches. Wiring connectors shall be the crimp type with plastic sleeve or shrink tube insulation covering the crimped area to prevent accidental grounding. In-line connectors shall also utilize shrink tubing for a weatherproof connection.

Body wiring shall be color and function coded, grease, oil and moisture resistant, routed in protective loom through protected locations, neatly and securely fastened, and all apertures properly grommeted for passing wiring. Solderless insulated connectors shall be provided where required. Primary wiring harnesses shall be bench assembled. Where crimp connections are necessary, the connections shall be made using approved connectors with heat shrink insulators. Any wiring routed within proximity of any exhaust components or other high temperature components shall be given special consideration and shielded for best protection.

All solenoids, relays, terminal blocks and circuit breakers shall be protected against corrosion, excessive heat, vibration, physical damage and water spray.

All solenoids, relays, terminal blocks, and critical circuit breakers located in exposed area such as pump cavity shall be installed in sealed waterproof electric box and labeled.

### **COAXIAL CABLE**

There shall be two (2) RG58U radio coaxial cables run from the cab roof to the front console for radio installation

### **CONSOLE FOR CONTROLS & FUNCTIONS**

A switch panel console controlling electrical devices and equipment installed on the chassis and body shall be located in the cab on the chassis dash or control console, within easy access to the driver. The switches arranged in the most convenient and practical manner that is possible.

The panel shall control individually all emergency warning light circuits, which shall also be controlled by warning master switch. The switches for the scene lights as well as the controls for the front turret shall also be mounted in this location.

Switch panel shall be laid out as follows:

- Emergency front warning light master switch
- Horn / siren selector
- Brow light
- Rear work lights

## **12V DC VOLTAGE OUTPUT TESTING & DOCUMENTATION**

The low voltage system of the completed apparatus shall be tested and certified by the manufacturer prior to delivery. A copy of the testing and successful completion will be provided to the purchaser with the in the Owners Manual. Any failures to these tests will require corrective actions to be taken and re-tested before delivery.

### **RESERVE CAPACITY TEST:**

The engine shall be started and run until all engine and engine compartment temperatures are stabilized and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be shut down. The battery system shall then be capable of restarting the engine.

### **ALTERNATOR PERFORMANCE TEST AT IDLE:**

Minimum continuous electrical load shall be activated while the unit is at idle speed. The engine and engine compartment temperatures are stabilized. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

### **ALTERNATOR PERFORMANCE TEST AT FULL LOAD:**

The total continuous electrical load shall be activated with the engine running up to the manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during the test. If however, an alarm sounded by excessive battery discharge, as detected by the system, or a voltage of less than 11.7 volts DC for a 12-volt nominal system for more than 120 seconds, it shall be considered a test failure.

### **LOW VOLTAGE ALARM TEST:**

The engine shall be shut off and the total continuous electrical load shall be activated and continue to be applied until the excessive battery discharge alarm is activated. The battery voltage measured at the battery terminals with the load still applied must be above 11.7 volts or the test shall be considered a failure and corrective actions employed.

### **DOCUMENTATION:**

At the time of delivery an Amp Draw Report Section 13-15 will be completed and provided to the purchaser with the Owners Manual. Documentation shall include:

1. Copy of electrical system performance test complying with NFPA 1901,
2. Written load analysis with the following information:
  - Nameplate rating of the alternator
  - The alternator rating under the conditions specified NFPA 1901, section 13.3.2.
  - The minimum continuous load of each component specified per NFPA 1901
  - Additional electrical loads that, when added to the minimum continuous electrical load, determine the total electrical load.
  - Each individual intermittent electrical load

### **BATTERY DISCONNECT SWITCH**

A solenoid operated battery disconnect switch shall be installed on the chassis to disconnect the body electric from the chassis batteries. Switch shall be engaged by the use of ignition switch. When the ignition switch is switched to off position, the solenoid shall separate the body and equipment from the batteries.

## **BATTERY LIGHT**

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

## **LOW VOLTAGE ALARM**

There shall be one (1) low voltage alarm installed on the unit. There shall be an audio and visual indicator installed in the cab.

## **CLEARANCE / MARKER LIGHTS (L.E.D)**

The apparatus body shall be equipped Truck-Lite brand L.E.D marker lights. Lights shall be of the proper color and in accordance with the Federal Motor Vehicle Safety Standards (FMVSS).

A license bracket shall be provided at the rear of the unit with required LED lighting.

## **STOP / TAIL / TURN / BACKUP LIGHTS**

The stop/tail/turn light type used shall be Whelen brand 600 series LED lights respectfully mounted to the rear of the apparatus.

All lights and reflectors shall conform to D.O.T. and FMVSS minimums for such vehicles of this type.

Connections for each light shall be made using watertight, plug assemblies,

## **BACK-UP ALARM**

An ECCO back-up alarm shall be installed under the rear of the apparatus body that meets minimum requirements of NFPA 1901. It shall be rated at not less than 102 DBA

It shall be automatically activated whenever the transmission is in the reverse mode of operation.

## **RADIO EQUIPMENT**

The unit shall have two (2) Motorola model number XTL 2500 series 800 MHZ digital radios mounted in the controls and functions console in the cab. The radios shall be programmed according to the Customers request and external antennas mounted on the Cab Roof. The external speakers shall be mounted in the headliner over the rear seat.

## **WARNING SYSTEM**

A Whelen model Liberty 54" L.E.D. light bar shall be installed on the cab roof of the unit. There shall be eight (8) red L.E.D light heads

There shall be two modes of operation, calling for the right-of-way and blocking the right-of-way. When the master optical; warning system switch is closed, and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for right-of-way shall be energized. When the master optical warning system switch is closed, and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of the right-of-way shall be energized.

## **LOWER LEVEL**

There shall be a total of two (2) 50R0FRR 500 series Super L.E.D. surface mount lights mounted on the unit utilizing chrome flanges. Lights shall be mounted as follows:



Two (2) lights mounted on the grill (lower zone A).

There shall be a total of eight (8) 40R00FRR 400 series Super L.E.D. surface mount lights mounted on the unit utilizing chrome flanges. Lights shall be mounted as follows:

Two (2) Front corner lights (one each side).

Two (4) midship (one each side) in the rear wheel area.

Two (2) rear corner (one each side).

Two (2) rear skid unit

### **UPPER LEVEL**

There shall be a total of two (2) 40R00FRR 400 series L.E.D. surface mount lights mounted on the unit utilizing chrome flanges. Lights shall be mounted as follows:

Two (2) Upper rear side Zones B&D (one each side).

Two (2) WHELEN L31H Series Red LED flashing lights on opposite sides of the rear compartments. (ZONE C)

There shall be a total of two (2) 90R02FRR 900 series Super L.E.D. surface mount lights mounted on the unit utilizing chrome flanges. Lights shall be mounted as follows:

### **ELECTRONIC SIREN & SPEAKER**

There shall be one (1) Whelen model 295SLSA1200-watt self-contained siren with electronic noise canceling microphone shall be installed in the cab area.

There shall be Two (2) compact flush mount or undermount speakers with 100-watt driver and a polished finish will be supplied. They will be recessed in the front chassis bumper symmetrically balanced in the front.

### **SCENE LIGHTS**

There shall be installed on the rear of the vehicle 12V scene illumination lights. These lights shall have a control switch mounted within easy reach of the operator.

Two (2) Whelen LED scene lights, Pioneer PFA1 push-up pole lights shall be mounted on the left and right sides of the number 1 and number 2 compartments.

### **COMPARTMENT LIGHTS**

Compartment lighting shall consist of, Light emitting diode (LED) strip style lighting mounted in the door track extrusion. Each light strip shall be consist of a thirty (30) LEDs placed every foot of light assembly" in cased in a durable and impact resistant translucent shield to protect the diodes from inadvertent contact or collision which may result in damage. The lights shall be mounted vertically in each compartment where they will not interfere with adjustment or accessibility of any shelving or equipment.

Each light shall be sized accordingly to illuminate the compartment adequately.

### **COMPARTMENT OPEN LIGHT**

A large red LED 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.

### **ENGINE COMPARTMENT LIGHT**

There shall be one (1) LED light installed in the engine compartment to illuminate the engine area. There shall be a switch located adjacent to or on the light.

### **GROUND AREA LIGHTING**

There shall be low voltage, 4” rubber shock mounted, light emitting diode (LED) lighting provided around the truck to provide proper ground area illumination in areas designed for the personnel to climb onto or descend from as well as for work area illumination under the body sides. Each light shall consist of at least 10 LED’s encased in a durable and impact resistant translucent shield to protect the diodes from inadvertent contact or collision, which may result in damage.

Lights shall be provided behind the rear wheels; under the rear tailboard and along the body ahead of the rear wheels.

### **THE DRY POWDER SKID UNIT**

#### **CYLINDER**

The fire extinguisher cylinder shall be designed and manufactured to comply with the code of American Society of Mechanical Engineers (ASME). The cylinder shall bear the nameplate of ASME code fabricator with the information required by the code and seal welded to the cylinder.

#### **SAFETY POP-OFF VALVE**

Each extinguished cylinder will be fitted with a coupling in the top of the extinguisher cylinder to accommodate a listed Sherwood Selpac Corp. Model F-605-65 Pop off valve to vent at 312 PSI. The pop off shall be protected by a guard to surround the valve with a water drain hole at the bottom most part of the guard.

#### **FILLER CAP**

Each extinguished cylinder will be fitted with a flange in the top head with a groove to accommodate an “O” ring, which will seat to the filler cap. The filler cap shall have male threads with a slot in the bottom three threads to vent to atmospheric any pressure that might be in the cylinder in the event the filler cap should be removed while the fire extinguisher is pressurized.

#### **SKID**

The skid shall be designed with a minimum clearance of four inches to the deck. All metal points where a corrosive condition could be expected shall be seal welded.

#### **TIE DOWNS**

Each skid unit shall be fitted with tie down provisions at all four corners to secure the unit in a fixed location.

#### **LIFTING EYELET**

Each unit shall be fitted with a pad mounted lifting eyelet at a point where the unit can be lifted in a fixed location

#### **EXPELLENT GAS**

Expellant of the extinguishing agent shall be by dry nitrogen.

## **BACK UP NITROGEN SUPPLY**

The dry chemical extinguisher cylinder shall be pre-pressurized to the 200 PSI with one, 300 cubic ft. Nitrogen cylinder fitted with a regulator pre-set to 200 PSI a back check valve shall be installed between the four nitrogen cylinders and the extinguisher cylinder manifold. The back check will eliminate any back pressure flow in the direction of the nitrogen cylinder regulator.

## **DRY CHEMICAL CYLINDER ASSEMBLYS**

### CONSTRUCTION DETAILS

Dry chemical containers shall be made from SA-515-70 code plate for the Shell and ASME code heads.

A plurality of discharge tubes shall be fitted with-in the cylinder with a nitrogen gas tube installed near the discharge tubes to fluidize the dry chemical agent during the discharge of the agent.

At any point on the vessel where a support or mount is installed, a pad is seal welded to the vessel.

All extinguisher cylinders are code fabricated to comply with the code of the American Society of Mechanical Engineers.

## **EXPELLANT GAS ASSEMBLY**

The extinguisher is pre-pressurized with an expellant gas and fitted with a back up nitrogen supply which includes the components whose function it is to store, regulate carry and distribute the nitrogen gas necessary to carry the dry chemical through the hoses to discharge to the hazard.

## **NITROGEN CYLINDERS**

Four 300-cubic ft. capacity Nitrogen cylinders, each fitted with a regulator to regulate the pressure to 200 PSI plus or minus 5 PSI. The nitrogen cylinders are marked with the DOT specifications with a service pressure of 2015 PSI or greater.

## **MARKINGS**

Each extinguisher cylinder with a stainless steel plate required by the ASME code with the information required by the American Society of Mechanical Engineers. Pop Rivets hold a Manufacturers nameplate in place on each side of cowling protecting the system components and on each hose reel. A Manufacturers nameplate indicating the model number and address. A metal tag is attached to the remote discharge tubes warning that the valve is under pressure. The nitrogen cylinders are stenciled to indicate "nitrogen" for fire extinguisher.

## **SYSTEM COMPONENTS**

A rod and lever extending to the front of the skid for manual actuation shall be supplied.

## **HIGH PRESSURE MANIFOLD**

A high-pressure manifold is used in the system. The nitrogen cylinder is fitted with a regulate the pressure to 200 PSI plus or minus 5 PSI to a low-pressure manifold.

## **LOW PRESSURE MANIFOLD**

Consists of a manifold block, fittings, valves and Stratoflex or Synflex or Aeroequip Flex hose having a minimum burst pressure of 5000 for ¾ inch, 9000 for ½" and 3/8 inch and 10,000 for the ¼ inch.

## **HOSE**

The hose reel shall be equipped with 150 foot 1” booster hose.

## **DISCHARGE VALVE-HOSE END**

A 1” Elkhart Brass MFG. Co, model SB-275-G Pistol grip shut off shall be supplied.

## **NOZZLE TIP**

Aluminum smooth round bore tip nozzle attaches to the Elkhart or Akron Valves.

## **HOSE REEL**

One (1) Hose reel shall be furnished with 150 foot of 1” of hose.

## **ADDITIONAL DISCHARGE PORT**

One (1) additional discharge outlet shall be plumbed to a 1” electronically controlled Turret mounted to the front of the Vehicle and controlled from a console in the cab. This turret shall be able to be moved left, right, up and down.

## **CHEMICAL AGENT**

The unit shall be shipped full of “ABC” Dry Powder Firefighting agent.

## **PAINT PREPERATION AND PAINT DETAIL**

The body exterior 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, doorjambes 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 in aluminum, before etching and treatment.

A wax & grease solvent shall be used to clean and prep the aluminum 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, aluminum 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 contaminates 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 topcoat.

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 topcoat finish.

The body shall be painted to match the (PAINT COLOR & CODE) provided by the fire department.

## **LETTERING AND STRIPING**

### **CAB AND BODY ACCENT STRIPE**

A cab and body Scotchlite reflective stripe, 6” minimum in width, located no higher than 48” from the ground shall be installed. The stripe shall cover a minimum of fifty percent (50%) of perimeter of each side of the apparatus and fifty percent (50%) of the perimeter of the rear of the apparatus and twenty-five (25%) of the perimeter of the front of the apparatus meeting minimum NFPA requirements. The location will be determined at the pre-construction meeting.

The stripe shall be White in color with Black trim.

### **CAB DOOR REFLECTIVE STRIPING**

The completed apparatus shall be equipped with reflective material on the interior of each cab door in accordance with the current standards of NFPA.

### **ALTERNATING “CHEVRON” STYLE STRIPE (FULL COVERAGE)**

The rear of the apparatus, where ever possible shall be overlaid with alternating red and (amber / green) reflective 6” stripes. Due to the rear controls for the skid unit Chevron stripes will be limited and lay out will vary because of surface area available.

### **GRAPHICS**

The Sharonville Fire Department custom door seal will be installed on both cab side doors. The Large SFD Emblem shall be displayed on the Skid unit cover on each side of the vehicle. The lettering “an NEFC Department” shall be displayed in light blue on each rear door on the chassis. The phrase “ Vehicle provided by Homeland Security Grant” shall be placed on the rear compartments on both sides of the vehicle in blue lettering.

## **LOOSE EQUIPMENT**

### **WIRING SCHEMATICS**

A complete set of detailed electrical wiring schematics shall be provided with the completed unit. The schematic shall clearly labeled and describe all electrical circuits for an accurate reference.

### **SERVICE MANUAL AND PARTS LIST**

A service manual shall be provided with the completed unit. Manual shall include equipment and component information as well as warranty and service information.

### **WHEEL CHOCKS**

Four (4) ZICO Model SAC-44 Quik Choc collapsible wheel chocks shall be provided. They shall be mounted in ZICO SQCH-44-H holders located under the left and right side of the vehicle.

### **CHEMICAL AGENT**

There shall be 2500 lbs of Purple K powder shipped with the unit to replace the agent used for training.

### **CLASS “D” FIRE EXTINGUISHERS**

One (1) 150Lb MET-L-X Fire Extinguisher with 100 ft. of .750 in. discharge hose. The unit shall have both a nozzle as well as extension wand. The unit shall be mounted in the area under the cover of the skid unit.

## **WARRANTIES**

### **Chassis Warranties**

Basic .....	36 month/36,000 miles
Powertrain .....	60 month/60,000 miles
Corrosion Perforation .....	60 month/unlimited mileage
Roadside Assistance .....	60 month/60,000 miles
Diesel Engine .....	60 month/100,000 miles

### **Body**

The body and frame of the unit shall be warranted, in writing from the manufacturer, for a period of not less than ten (10) years against structural failure. The warranty will ensure that the unit will be free of all structural defects of both material and workmanship that may appear under normal use and service within the warranty period.

### **Electrical**

The electrical system shall be warranted, in writing from the manufacturer, for a period of not less than five (5) years against structural failure. The warranty will ensure that the vehicle will be free from defects of in the electrical harness and connections under normal use and service within the warranty period.

### **Limited**

The body manufacturer shall warrant the new apparatus for a period of twelve (12) months or 12,000 miles (whichever occurs first) from the date of delivery to the original retail purchaser. The warranty will ensure that the vehicle will be free from defects in material and workmanship that may appear under normal use and service within the warranty period.

### **Paint**

The body manufacturer shall warrant the new apparatus paint finish for a period of seven (7) years or 84,000 miles (whichever occurs first) from the date of delivery to the original retail purchaser. The warranty will ensure that the vehicle will be free from peeling, cracking, loss of gloss caused by cracking, and any paint failure caused by defective finishes as determined by the manufacturer under normal use and service within the warranty period.