One (1)
03-00-0100

COMMANDER CHASSIS

The Rosenbauer Commander is a custom designed chassis exclusively for the fire service that provides a full tilt-type customized fire apparatus chassis and occupant cab. All Rosenbauer chassis are designed, engineered, tested, and individually manufactured at our Wyoming Minnesota Campus by a group of highly skilled individuals which eliminates any potential split responsibility between an apparatus body builder and a separate chassis builder. The entire Rosenbauer fire apparatus, including the chassis, is manufactured specifically for fire service use, will be capable of meeting the stringent demands of fire service duty and meets all current NFPA 1901 guidelines.

One (1)
03-00-0101

NFPA STANDARDS

This unit shall comply with all of the current NFPA standards.

Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.

A plate that is highly visible to the driver while seated shall be provided which states the overall height, length, and gross vehicle weight rating.

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company shall designate, in writing, which is qualified to witness and certify test results.

One (1)
08-09-0100

PAINT WARRANTY FIVE YEAR

The PPG paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of FIVE (5) years beginning the day the vehicle is delivered to the purchaser.

The full apparatus chassis, manufactured and painted by Rosenbauer Motors, LLC, shall be covered for the following paint failures as outlined on the guarantee certificate:

- Peeling or delaminating of the topcoat and/or other layers of paint.
- Cracking or checking.
- Loss of gloss caused by cracking, checking, or hazing.
- Any paint failure caused by defective PPG Fleet Finishes, which are covered by this guarantee.

All guarantee exclusions, limitations, and methods of claims are covered in the full certificate provided to the original purchaser.

Note: Surety bond, if required, will cover the standard one-year warranty period only and will not cover any extended warranties allowed by the seller or other component manufacturers.

One (1)
08-09-0104

CAB STRUCTURE WARRANTY

The cab structure shall be warranted for a period of ten (10) years with the complete details of the warranty outlined in a document provided upon request.

One (1)
08-09-0105

TRANSMISSION WARRANTY

The Allison EVS transmission shall be warranted for a period of five (5) years with the complete details of the warranty outlined in a document provided upon request.

One (1)
08-09-0106

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever comes first, with the complete details of the warranty outlined in a document provided upon request.

One (1)
08-09-0107

FRAME WARRANTY

The frame and cross members shall carry a lifetime warranty with the complete details of the warranty outlined in a document provided upon request.

One (1)
08-09-0109

FRONT AXLE WARRANTY

The front axle shall be warranted by Hendrickson for five (5) years or 500,000 miles, whichever comes first, under the general service application.

One (1)
08-09-010A

REAR AXLE WARRANTY

The rear axle(s) shall be warranted by Meritor for five (5) years with unlimited miles under the general service application.

One (1)
08-09-0110

CAB AND CHASSIS WARRANTY

The cab and chassis shall carry a twelve (12) month warranty providing limited parts and labor from the date the complete apparatus is delivered to the end user. The complete details of the warranty shall be outlined in a document provided upon request.

One (1)
08-09-0260

LCS WARRANTY – 4 YEAR

A four (4) year limited LCS system warranty, shall be provided by the apparatus manufacturer for parts and labor, while under normal use and service; against mechanical, electrical, and physical defects from the date of manufacture.

The warranty shall exclude sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical displays, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation. A copy of the warranty shall be provided with each Bidders proposal for the review and evaluation of the Purchaser.

One (1)
08-09-0301

STATIC LOAD SEAT TEST INFORMATION

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. To reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208.

The materials used in construction of the seat shall also have successfully completed testing regarding the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

One (1)
08-09-0302

CAB TEST INFORMATION

The cab as built shall have successfully completed the pre-load side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests shall have been witnessed by and attested to by an independent third party. The test results shall have been recorded using cameras, high speed imagers, accelerometers, and strain gauges.

Documentation of the testing shall be provided upon request.

One (1)
08-09-0303

CAB INTEGRITY CERTIFICATION

The manufacturer shall provide a cab crash test certification with this proposal including SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading for Heavy Trucks and SAE J2420 COE Frontal Strength Evaluation - Dynamic Load for Heavy Trucks.

One (1)
08-09-0304

CAB TEST INFORMATION

ROOF CRUSH

The cab shall be subjected to a roof crush test of 120,000 pounds exceeding the requirements of ECE 29 criteria. The 120,000-pound requirement is important to ensure the most structurally sound and safe cab in the event of a crash or roll over.

SIDE IMPACT

The cab shall be subjected to dynamic moving barrier slammed into the side of the cab at 7.5 mph, striking with an impact of 15,157-foot pounds of energy. This test will closely represent the forces a cab would incur in a rollover incident.

FRONTAL IMPACT

The cab shall withstand a frontal force produced from a moving barrier slammed into the front of the cab traveling at 10.5 mph, striking with an impact of 42,587-foot pounds of energy.

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

One (1)
08-09-0501

OPERATION AND PARTS LIST MANUALS

Each cab and chassis shall include two (2) electronic copies of the operation manuals and parts listings. The manuals shall include information specific to the components included on the apparatus.

One (1)
08-09-0503

ENGINE AND TRANSMISSION MANUALS

One (1) paper copy of the specific engine and transmission manuals shall accompany each cab and chassis.

One (1)
08-09-0530

AS BUILT WIRING DIAGRAMS

Each cab and chassis shall include one (1) digital copy of the wiring schematics and component wiring. The wiring schematics shall be developed on a software program such as VeSys Design or equal that provides continuity in files and diagrams. The software shall allow you to trace through the design schematics to identify cross-referenced items such as in-line connectors and

wires. The software shall be interactive which allows you to view one electrical assembly drawing, click on a wire routing and the program will take you to the related circuit assembly or termination point. The software shall also provide a searchable function allowing you to view multiple diagrams using readily available pdf viewers. The digital copy of the wiring schematics shall be compatible with handheld devices such as I-Pads.

One (1)
08-09-0540

USB STORAGE

For ease of service the chassis will come with an on-board USB flash drive. The flash drive shall have a minimum of 8 GB of storage capacity; and shall be located behind the access panel on the driver side kick panel, next to the data port for the engine.

The following items shall be stored on the Flash Drive. No Exception.

- As built wiring diagrams
- Plumbing diagram
- Chassis, body and aerial manuals

The USB shall be accessible through a 3-foot (3') USB-A to USB-B cable provided by the manufacture with the completed vehicle.

One (1)
08-80-0200

ROAD SAFETY KIT

- One (1) 2-1/2# ABC DOT Approved fire extinguisher shall be provided. The fire extinguisher shall be shipped loose with the chassis.
- One (1) set of DOT approved hazard triangles shall be supplied with the chassis. They shall be stored in a plastic case and shipped loose with the chassis.
- One (1) first aid kit

One (1)
03-00-0700

CAB CUSTOM STYLE

The cab shall be a custom, cab over engine style, with the driver and officer positions ahead of the engine and front axle. The cab shall be specifically designed and manufactured for the fire service industry.

The cab shall be designed by manufacturer's engineering to meet the unique, heavy-duty construction specifications. The raw cab will be fabricated to meet the exact demand of the fire industry and shall be manufactured by a company with no less than 50 years of experience in building custom cabs. All aspects of the cab will be quality checked by manufacturers personnel. All cab and chassis customization and assembly will take place on the manufacturer's premises.

The cab shall be of a totally enclosed full tilt design, with the interior area completely open to improve visibility and verbal communication between the occupants. The cab shall be capable of

tilting 45-degrees, allowing the chassis engine to be removed, if required, without tilting the cab beyond 45-degrees. No Exceptions.

The cab shall include a four (4)-point rubber isolated cab pivot and mounting system. The rear histic mounts shall be isolated from the chassis frame to reduce the transfer of road vibrations and frame torque into the cab, while providing superior handling characteristics. No solid mounted rear lock downs will be acceptable. No Exceptions.

The front cab pivot assemblies shall be 1/2" A36 steel plate with a .31" thick 2-1/2" diameter tube cross member mechanically attached to the cab and frame. There shall be two (2) greaseable rubber isolated engineered bushings to reduce the transfer of road vibrations into the cab.

The cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

The cab super-structure shall be designed with high strength 6061-T6 aluminum extrusions and 3/16" 5052-H32 aluminum plate. This shall include the “A”, “B”, “C” and “D” extruded pillars, triple wall front end reinforced by 3/16" thick x 2"x3" extrusion tubes, 3/16" side walls and rear wall. This shall offer superior occupant protection in the event of vehicle impact.

The extrusions shall provide adequate space for routing of wiring and hoses which will provide service accessibility. Routing of harnessing which requires pulling of wires through tubes will not be allowed. No Exceptions.

The "A" pillar shall be of a closed section, one-piece extrusion extending from the cab header to the bottom of the cab. This design shall ensure strength and superior resistance to buckling in the event of a frontal impact.

The cabs front corners shall be constructed of 5052-H32 stamped aluminum to provide a consistent material composition. The stamping process alleviates the high tendency of fractures through the fusing of dissimilar metal composition as appears with a casting process.

Cast cab components, including cab corners, "A" pillars and front fascia components shall not be acceptable due to the high tendency of fractures. No Exceptions.

Additional cab strength shall be obtained through closed section, dual extrusions in the construction of the "D" pillars.

The front facade shall be constructed with dual wall .19” thick 5052-H32 aluminum plates which make up the front bulkhead, reinforced by .19” thick 6061-T6 aluminum extrusion (box-sections), though-out the inner and outer perimeter of the front end / facade. The reinforcing third wall / barrier is .13” thick 5052-H32 work hardened aluminum facade panels. All panels shall be welded, no adhesive.

The cab side wall of the cab shall be 3/16” thick 5052-H32 aluminum plate. The cab side plate shall wrap the corner of the cab b pillar and slam post. The cab rear wall plates shall be reinforced with a minimum of two (2) 3/16 x 3” aluminum sections; the cab side reinforcements shall be a minimum of 28” apart and span from the cab B pillar and cab C pillar.

The rear wall of the cab shall be 3/16” thick 5052-H32 aluminum plate. The rear cab plate shall wrap the corner of the cab and attach to the cab D pillar and slam post. The cab rear wall plates shall be reinforced with four horizontal and dual vertical support sections; the dual vertical support structure shall consist of 1/8” thick x 2” 6061-T6 aluminum tubes and the horizontal hat sections shall consist of 1/8” thick x 4” 5052-H32 aluminum. The dual vertical support sections shall be 40” a-part, and the cab shall contain a minimum of four (4) 4” hat section horizontal supports.

Additionally, the rear edge of the floor shall include a 3/16” 6061-T6 aluminum tube extrusion (under the floor) and a 7” 5052-H32 aluminum cab floor support section (above the floor).

The outside cab width shall measure 99” across. The interior cab shall have a width of 93".

The cab length shall measure 77-1/3” from the center of the front axle to the front cab skin and 60” from center of the front axle to the back of the cab, for a total cab length of 137.3”.

The cab shall also feature ample driver and officer foot room, a total of 3.7 square feet for the driver and 4.45 square feet of floor space at the officer’s feet. (No exceptions)

The crew floor shall feature a complete flat floor design, including provisions for a one o'clock PTO inclusion, while still offering an uninterrupted 25 total square feet of space.

The leading edge of the cab floor from the steps shall meet NFPA 15.7.4 slip resistance requirements on both the front and rear cab doors. No Exceptions.

The cab shall meet or exceed cab impact test (SAE J-2420, cab rollover test (SAE J2422), and cab seating requirements (FMVSS 210, and FMVSS 208).

The cab shall include 4 doors. They shall have a front two (2) cab doors shall have a minimum clear opening of 42.5" wide by 81” high measured from the top of the lower cab step to the top of the door opening and the rear two (2) crew doors shall be a minimum clear door opening of 38-1/2" wide by 81” high measured from the top of the lower cab step to the top of the door opening. The length of the door will vary depending on the door type.

ROOF STYLE - FLAT

The roof of the cab shall incorporate a flat roof style. The cab roof design shall incorporate an angled front roof, transitioning into a rolled extrusion for a swept back design.

The roof of the cab shall feature dual .25" thick interlocked structural member extrusions running the entire width of the cab defending against buckling in the event of a rollover.

The interior cab height based on the flat roof style shall measure a minimum of 55-1/2”.

The crew roof super structure shall include a reinforcement hat-section structure 1/8” thick 5052-H32 aluminum bracing. The for-aft support braces will be 24” on center apart, the side-to-side support braces will stretch from cab side to cab side and centered between the dual 3/16” extruded and plate reinforced roll-cage section.

The forward cab roof section shall include a combination of 1/8” 6061-T6 extruded tube reinforcements and a hat-section structure 1/8” thick 5052-H32 aluminum bracing. The bracing shall wrap the entire perimeter of the cab forward roof, and the condenser support structure.

The condenser support structure shall include 1/8” triple sections, supporting the outer perimeter and center of the condenser mounting pad.

Additionally, the entire roof super structure is reinforced by a .25” thick roof edge corner extrusion around the entire cab perimeter.

A drip rail shall be provided along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

One (1)
03-06-0014

CAB STEPS

The cab steps shall meet NFPA 13-7.3 in size and slip resistance requirements.

The cab shall incorporate a two-step design at each door, with a first step height of approximately 22” from the ground. The leading edge of the first step shall be 5" further outboard than the second step to provide a staircase design for safer egress.

The front cab first step shall measure a minimum of 33" wide x 10" deep. The front cab intermediate step shall measure a minimum 31" wide x 8" deep.

The crew cab first step shall measure a minimum of 26" wide x 10" deep. The crew cab intermediate step shall measure a minimum 28" wide x 9" deep.

The top crew step shall incorporate an angle approximately midway from the rear wall to the crew door hinge extending out the flooring under the rear facing outer seat positions, offering foot placement for safety while seated in this position.

CAB STEP TRIM

The cab steps shall include a .80-gauge stainless steel construction on the first step, the step closest to the ground. The stainless-steel finish shall be a number 7 mirror. The step shall include a frame which is integral with the construction of the cab for rigidity and strength. The round hole pattern shall allow water and other debris to flow through rather than becoming packed under the step. The middle step shall be integral with the cab in construction and shall be trimmed in 3003-H22 embossed aluminum tread plate which is 0.100" thick.

One (1)
03-06-1015

CAB DOORS

The cab shall include a total of four (4) doors, two (2) forward and two (2) rear crew doors.

The forward cab doors shall be a minimum of 45" wide and have a cab structure opening of 42.5" wide. The rear crew doors shall be a minimum of 41" wide and a cab structure opening of 38.5" wide to provide enhanced entry and egress of the cab.

Each cab door shall feature:

- Superior strength and rigidity from 3/16" closed section extruded door frames
- Damping inside each door for a solid feel and minimized reverberation when closed
- A rolled rubber bulb seal style gasket shall be utilized around the door ensuring a weather tight fit
- Integrated, mechanical door stop
- A full length, hidden piano style 10-gauge stainless steel door hinge with a 3/8" pin, which shall be mounted inside the panel of the door prohibiting dirt and debris from becoming trapped in the hinge
- An integrated one-piece inner door assembly that includes a glass track, mounting provisions for window regulator, door handle and door panel shall be utilized. The inner door assembly shall be easily removed with nut inserts. Self-tapping screws shall not be acceptable.

One (1)
03-06-1025

FULL LENGTH DOORS

All doors shall be full length from the roof of the cab extending down to cover and protect the entrance step areas.

One (1)
03-06-0021

CAB STEP TRIM KICKPLATE

The vertical section of all cab step risers at each door shall include an aluminum treadplate finish.

One (1)
03-06-1110

DOOR HANDLES

The exterior door handles shall be constructed of die-cast steel. They shall feature heavy duty pull style handles which are extended out and suitable for easy grasping with a gloved hand.

The handles shall be complimentary to the cab exterior and shall be black in color.

The interior door handle shall be a paddle style which shall be chrome in color. The paddle shall be hinged towards the rear of the cab.

One (1)
03-06-1120

CAB DOOR LOCKS

All cab doors shall include manual door locks with keys. The door lock shall include a toggle and shall be an integral part of the interior door handle which is red in color. The exterior door lock is integrated with the door latch. The cab doors may be unlocked from the exterior with a key or through a thumb turn from inside the cab.

One (1)
03-06-1135

INTERIOR CAB DOORS

All cab doors shall consist of a one-piece formed and stamped aluminum interior panel. The panel shall include a formed collar around the interior door latch. The door panels shall be attached to the door with nutserts. ABS material shall not be acceptable. No exceptions.

One (1)
03-06-1201

INTERIOR CAB DOOR FINISH

All cab doors shall be finished with a polyurethane coating for durability. The finish shall be gray in color.

One (1)
03-06-1225

INTERIOR CAB DOOR CHEVRON

Reflective striping shall be installed on the interior of each chassis door. The lower portion of the doors shall have scotchlite red and yellow chevron striping applied to it. The striping shall be a minimum of 96 square inches per door. No Exception.

One (1)
04-05-0110

INTERIOR FRONT DOOR PULL

The interior driver and officer cab doors shall each include one (1) customized cast aluminum single piece door grab pull designed specifically for the fire service.

The single piece door pull shall have a curved designed in an “L” formation to provide multiple points for grasping with a gloved hand. The horizontal dimension shall be a minimum of 28" and the vertical dimension shall be a minimum of 20". The door pulls shall have an ergonomic curve making them easier to grasp when entering and exiting the cab. No Exceptions.

The door pull shall feature secure mounting in three separate locations of the pull utilizing stainless-steel fasteners with nut inserts in each location. Self-tapping screws or other mounting techniques shall not be allowed for interior door pulls or grab handles.

Each handle shall be constructed of A356 aluminum casting and shall feature a yellow powder coated finish.

One (1)
04-05-0151

INTERIOR GRAB HANDLE REAR DOOR

The interior driver and officer rear cab crew doors shall include one (1) customized cast aluminum single piece door grab pulls designed specifically for the fire service.

A yellow powder coated cast aluminum grab handle shall be provided on the inside of each rear crew door. The handle shall extend horizontally the width of the window just above the windowsill. The handle shall have an ergonomic curve making it easier to grasp assisting with entry and egress from the crew area of the vehicle. No Exceptions.

The door pull shall feature secure mounting with stainless-steel fasteners with nut inserts in each location. Self-tapping screws or other mounting techniques shall not be allowed for interior door pulls or grab handles.

Each handle shall be constructed of A356 aluminum casting and shall feature a yellow powder coated finish.

One (1)
03-08-0101

WINDSHIELD

A one (1)-piece, safety glass full width windshield with more than 3,228 square inches of area will be provided. No Exceptions.

The windshield shall feature:

- A completely uninterrupted view from both the driver and officer positions
- The windshield will consist of three (3) layers. The outer layer, the middle safety laminate, and the inner layer. The .114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage.
- Economical replacement readily available from auto glass supplier
- Easily removable for replacement using standard automotive techniques
- A frit band will be provided along with an outer trim seal on the outside perimeter of the windshield for a finished automotive appearance.

One (1)
03-08-0102

WINDSHIELD WIPER SYSTEM

A single windshield wiper system shall be incorporated in conformance with FMVSS and SAE requirements. Two (2) 22" windshield wiper arms shall be mounted below the windshield. Each arm shall include a 26" long wiper to provide optimum windshield clearing.

The windshield wiper fluid reservoir can be filled without raising the cab.

One (1)
08-02-0134

WINDSHIELD WIPER ACTIVATION

The windshield wipers shall be activated through LCS.

One (1)
03-08-0115

WINDOW -DRIVER'S DOOR

The driver's door shall include a window which measures a minimum of 23.5" wide x 29" high, measured from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 681 square inches. The glass shall include a standard automotive tint and through the use of a manual crank style handle shall roll completely into the door housing.

The window shall be trimmed in a black anodized aluminum ring and rubber seal to keep water from entering the cab when closed.

One (1)
03-08-0117

WINDOW- OFFICER'S DOOR

The officer's door shall include a window which measures a minimum of 23.5" wide x 29" high, measured from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 681 square inches. The glass shall include a standard automotive tint and through the use of a manual crank style handle shall roll completely into the door housing.

The window shall be trimmed in a black anodized aluminum ring and rubber seal to keep water from entering the cab when closed.

One (1)
03-08-0200

REAR DRIVER SIDE CREW WINDOW

The rear driver's side crew door shall include a window measuring 22.5" wide x 27" high, measured from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 607 square inches. The glass shall include a standard automotive tint and through the use of a manual crank style handle, shall roll completely into the door housing.

One (1)
03-08-0240

REAR OFFICER SIDE CREW WINDOW

The rear officer's side crew door shall include a window measuring 22.5" wide x 27" high, measured from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 607 square inches. The glass shall include standard automotive tint and through the use of a crank style handle, shall roll completely into the door housing.

One (1)
03-08-0300

DRIVER CANOPY SIDE WINDOW

The cab shall include a fixed driver's side window glass which shall be located between the cab front and rear doors. The fritted glass shall have a clear viewing area of 15.5" wide x 21.5" high and shall include a standard automotive tint. To eliminate the possibility of corrosion, rubber gasket rings shall not be used in the installation of the window, the window shall be glued in.

One (1)
03-08-0350

OFFICER CANOPY SIDE WINDOW

The cab shall include a fixed officer's side window glass which shall be located between the cab front and rear doors. The fritted glass shall have a clear viewing area of 15.5" wide x 21.5" high and shall include a standard automotive tint. To eliminate the possibility of corrosion, rubber gasket rings shall not be used in the installation of the window, the window shall be glued in.

One (1)
04-00-0000

CAB INTERIOR AND TRIM

One (1)
03-09-7022

CAB INSULATION

The cab shall be insulated from road and vehicle resonance, exterior sound, and thermal intrusion.

The cab insulation system shall be comprised of three separate components each designed to assure optimal thermal and acoustic properties are achieved. Two layers of insulation material shall be utilized.

A minimum of .8” of SCbond Polyurethane Foam insulation shall be applied as an additional insulation between the cab skin and all interior ceiling surfaces. The insulation shall have a density of 10 lb/ft3 +/-.5 providing better thermal properties and acoustic reduction properties.

A layer of 1/8” barrier bubble film laminated between two layers of reflective metalized film shall be provided in the roof to minimize the effects of radiant heat. The barrier shall be mold and mildew resistant and have a Class A/Class 1 fire rating. The barrier shall have a minimum of a R-5.6 rating. No Exception

The interior cab insulation system shall meet NFPA 1901 14.1.6 standards and ensure that no seated position within the cab exceeds 90dB. This decibel rating shall be measured with the apparatus traveling 45 mph with climate control settings off.

All insulation used in the construction of the cab shall be marine grade featuring longevity and resistance to degradation.

The interior of the cab including the rear wall, side walls and ceiling panels shall be insulated.

Use of open cell material as the primary insulation will not be acceptable. No exceptions.

One (1)
03-09-8020

DAMPING INSULATION

The entire cab, including the ceiling and walls shall include additional insulation reducing structure borne noise from vibration, impact, and resonance within the cab.

One (1)
03-09-8041

ENGINE TUNNEL INSULATION

The engine tunnel shall include an insulated barrier from noise on the underside of each tunnel surface. This barrier shall be engineered for surrounding engines.

The insulation barrier shall provide an acceptable decibel level within the cab meeting or exceeding the recommendations of NFPA 1901.

The thickness of the engine tunnel insulation shall be 1" thick. The insulating material shall be open cell polyether-based foam with a textured surface, specifically designed for acoustic absorption.

Use of aluminized faced material on the engine tunnel shall not be acceptable. No exceptions.

The engine tunnel insulation shall be precisely cut and sealed to fit each segment on the underside of the tunnel surface. The insulation shall then be affixed by a pressure sensitive adhesive.

The insulation shall meet or exceed FMVSS 302 flammability testing.

One (1)
04-01-1000

INTERIOR TRIM MATERIAL

The interior trim shall feature a 31 oz. marine grade vinyl which features a tensile strength of ASTM D751 of excellent, tear strength meeting the Federal standard 191-5134 of excellent and shall be oil resistant passing the CID-A-A-2950A requirement for no permeation.

Due to the excellent qualities of the marine grade vinyl material, no other type of interior trim shall be acceptable. No Exceptions.

The soft trim vinyl shall feature mildew resistance passing ASTM G21-90 and shall be rated to -25 degrees Fahrenheit.

The vinyl shall be flame retardant meeting California Fire Code 117, UFAC Class 1, and BIFMA Class 1 and shall have a high resistance to abrasion.

The interior of the cab including the ceiling panels shall feature this soft trim and shall be gray in color.

One (1)
04-01-1050

INTERIOR TRIM MATERIAL

The rear wall of the cab shall be covered in gray 31 oz. marine grade vinyl for a more pleasing appearance.

One (1)
04-02-1002

THROTTLE AND BRAKE PEDALS

The apparatus shall have suspended throttle and brake pedals.

One (1)
04-02-1164

FLOOR MAT

The interior flooring of the cab shall be covered with an advanced gray multi-layer acoustic dampening mat. The floor matting shall be an open/closed cell, flexible polyurethane polyamide material with frictional dampening and dissipation properties. The mat shall be a fire and skid resistant non-wicking material.

One (1)
04-02-1700

SUN VISORS

The driver and officer seats shall feature a sun visor mounted in the header over each seating position. The sun visors shall be padded and trimmed in black vinyl.

One (1)
04-03-1034

ENGINE TUNNEL

The engine tunnel shall be constructed of aluminum offering superior durability in addition to thermal and acoustic resistance.

The engine tunnel shall feature:

- A low-profile design measuring approximately 46.5" wide and 21.5" in height from the crew floor shall offer optimum visibility of the windshield and cab interior from any seated position. No Exception.
- The engine tunnel at the driver's position shall be a tapered design, featuring 24" clear width at floor level, first taper shall start 16.5" from floor level and taper inward for a clear width of 26" and the final taper shall start at 21" from floor level and taper inward for a clear width of 33".
- The engine tunnel at the officer's position shall be a tapered design, featuring 23" clear width at floor level, first taper shall start 16.5" from floor level and taper inward for a clear width of 22.5" and the final taper shall start at 21" from floor level and taper inward for a clear width of 31.5".
- The design shall offer a minimum of 30" for the driver and 28.5" for the officer as measured from the inside door pan to the top edge of the tunnel. The dimension measured at the "H" (hip) point, with the seat in the lowest position, shall be a minimum of 28.5" for the driver and 27" for the officer. No Exception.
- Recessed sections for ease of mounting equipment at the rear of the tunnel or for compartments and bases which can be used for installing Fire/EMS equipment and components such as hand-held radios.

CAB DASH

The cab dash shall offer heavy duty, durable construction from formed aluminum. The cab dash shall be finished with an advanced polyurethane coating for a rugged finish.

The polyurethane finish shall provide a tough, flexible, impact-absorbing, chemical & abrasion-resistant, even-textured and skid-resistant surface. The polyurethane finish shall offer durability and scratch resistance even against today's advanced firefighting turnout materials with consistent, even coverage and a uniform texture. The polyurethane coating finish shall resist fading from UV light.

This construction shall allow for a clean, seamless dash area that shall reduce unnecessary joining of cab dash components. This design allows for the following features:

- Optimal heating and cooling of cab occupants, HVAC louvers shall be integrated into the gauge panel with a total of four (4) louvers; two louvers pointing at the driver and two louvers pointing at the officer.
- For improved safety cab switches and controls shall be ergonomically located within easy reach of the driver when in the seated position with seatbelts fastened. This design will reduce driver distraction and increase safety by putting frequently accessed driver controls within easy reach to allow the driver more time to focus on the road.
- The officer side cab dash shall house the two HVAC louvers on the officer side. This panel will also provide ergonomically located switches and controls for the officer. All controls shall be within easy reach while in the seated position with seatbelts fastened.
- Access panels on the top of the dash for both the driver and officer sides easing maintenance access to controls, components and gauge assemblies
- The driver side dash shall include gauges for primary air pressure, secondary air pressure, a Pacific Insight instrumentation gauge panel and the DEF gauge as standard
- The driver side dash shall also include two (2) lower panels to the left and right of the steering column for FMVSS switches such as the Off/Ignition and start switches and the park brake assembly
- The dash shall include a provision for switches to the right of the driver
- The officer dash shall include a flat area for optional mounting cradles or brackets for a laptop computer, mobile data terminal, map compartment or clip board
- The officer dash shall include a provision for switches to the left of the officer

One (1)
04-03-1010

CAB DASH & ENGINE TUNNEL

The cab dash and the engine tunnel of the cab shall be coated with a polyurethane coating for a durable finish. The color shall be gray.

One (1)
04-04-1360

CUP HOLDER

Two (2) cup holders shall be provided. There shall be one (1) mounted each on the driver and officer side in the forward outer portion of the top of dash horizontal surface.

One (1)
08-01-0049

PUMP SHIFT - LCS

Pump shift controls shall be implemented on the LCS hardware at the pump panel.

One (1)
08-01-0144

INSTRUMENTATION PANEL

The instrumentation panel inlay shall be powder coat black.

One (1)
05-01-1055

INTERIOR CAB FINISH

The interior cab shall be finished in a high-performance Polyurethane coating including the interior A, B, C and D pillars, all occupant seat frames and any surrounding surfaces extending to the ball seal around each door.

This type of coating shall feature:

- Durability, scratch, chemical and abrasion resistance
- Consistent, even coverage and a uniform texture
- Resistance from fading from exposure to UV light
- Gray in color

One (1)
04-08-0151

CAB FENDERS

The cab wheel wells shall have full width, 14-gauge 304 polished, stainless-steel cab fenders to resist corrosion and enable easier cleaning maintenance. The inner liner, measuring 18" wide shall be constructed of plastic with an outer fenderette measuring 2.5" wide. The inner liner shall be installed with 410 stainless-steel hardware that has been coated with black zinc oxide.

One (1)
04-09-0300

COMMANDER LOGO

A COMMANDER logo shall be installed on each side of the chassis cab.

One (1)
04-10-0351

FRONT MUD FLAPS

The cab and chassis shall be provided with rubber front mud flaps with the Rosenbauer "R" logo.

One (1)
05-02-0010

CAB HEADER

The cab header shall offer heavy-duty, durable construction using resin transfer molding (RTM) technology formed composite material. The composite material shall be .28" thick for improved resistance and military type strength.

RTM is a low pressure, closed molding process which offers a dimensionally accurate and high-quality surface finish composite molding, using liquid thermoset polymers reinforced with various forms of fiber reinforcements. The matrix selection of polymer and reinforcement dictates molding mechanical and surface finish performance.

ABS polymer construction shall not be acceptable. No Exceptions.

The cab header shall offer a finish of a polyurethane coating for a rugged design and finish. No Exceptions.

The polyurethane finish shall provide a tough, flexible, impact-absorbing, chemical & abrasion-resistant, even-textured and skid-resistant surface. The polyurethane finish shall offer durability and scratch resistance even against today's advanced firefighting turnout materials with consistent, even coverage and a uniform texture. The polyurethane coating finish shall resist fading from UV light.

The cab header shall also be purpose built for integration of Fire/EMS components and ease of maintenance with panels above both the driver and officer positions measuring 8" wide x 15"long for mounting radios, aerial controls, and switches.

HVAC HEATING AND COOLING SYSTEMS

The interior cab climate control shall be comprised of a triple system that shall include a defroster, a cab and crew heater and air conditioner for a complete HVAC system. The air conditioning system shall be comprised of compressor, condenser, and a minimum of three (3) evaporators to provide consistent temperature control throughout the entire cab.

The system shall be rated as an Emergency Vehicle grade for use in Fire and Rescue style vehicles and shall provide environmental air treatment in accordance with published SAE standards.

The HVAC system shall be tested and certified by the component manufacturer and a third-party independent certified testing laboratory, including all three systems. Documentation of test results shall be provided with the bid. No Exceptions.

The HVAC system shall be a total and complete system, and shall provide sufficient defrosting, heating and cooling to the entire cab. The HVAC system shall meet or exceed all specified items without the use of auxiliary heating and cooling systems.

DEFROSTING SYSTEM

The defrosting system shall feature:

- To provide maximum defrost and heating performance, a 30,000 BTU heater-defroster unit will be provided inside the cab.

- The defroster unit will be strategically located under the center forward portion of the instrument panel. For easy access, a removable cover will be installed over the defroster unit.
- Six (6) vents shall be located in the top forward portion of the dash for superior defrosting properties across the entire windshield.
- Defrost vents for the driver's and officer's windows.
- The system shall be capable of clearing 90 percent or more of the windshield in fifteen (15) minutes or less after a three (3) hour cold soak at 0 degrees Fahrenheit (-17.78 degrees Celsius).
- The system shall exceed flash fogging standards that are set forth in the SAE Heavy-duty cab with sleeper specifications. Documentation from a third-party testing facility shall be available upon request. No Exception.
- The defroster will include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the one (1) piece windshield.

HEATING SYSTEM

The heating system shall feature:

- Delivery of a minimum of 82,000 BTU/hour of heat to the entire cab.
- Heat and air circulation shall be provided to the driver's and officer's foot area of the cab as standard through ducting in the foot well area of both positions. No Exception.
- Substantial air movement and heating provided to the driver and officer's position, composite dash will have six (6) adjustable louvers, located in the dash, three (3) adjustable louvers directed at the driver and three (3) adjustable louvers directed at the officer and floor vents at the driver and officer.
- Aluminum dash will have (4) adjustable louvers, located in the dash, two (2) adjustable louvers directed at the driver and two (2) adjustable louvers directed at the officer and floor vents at the driver and officer.
- Dual overhead units, with five (5) adjustable louvers shall be mounted above the rear facing seat positions on the driver and officer side of the cab
- The heater shall be plumbed with a shut off valve at the engine, so that the coolant bypasses the heaters.

AIR CONDITIONING

The air conditioning system shall feature:

- One (1) evaporator shall be located under the center dash and two (2) crew overhead evaporators located near the B-pillar on each side of the cab allowing for greater frontal visibility for the forward-facing crew seating and allowing for more interior mounting of accessories.
- A gravity condensation drain system shall be utilized. These drains shall remove all condensation from the evaporator units and direct it to the exterior of the chassis cab for optimal performance. Systems utilizing pumps to remove condensation, or gravity systems with poles or other obstructions located within the cab to route drains through shall not be acceptable. No Exceptions.

- Substantial air movement for optimum cooling shall be provided to the driver and officer positions, with six (6) adjustable louvers, located in the dash, three (3) adjustable louvers shall be directed at the driver and three (3) adjustable louvers shall be directed at the officer and floor vents at the driver and officer.
- The air condition system shall be capable of cooling the cab from outside ambient average temp of 104 degrees Fahrenheit (40 degrees Celsius) to an average inside cab temp of 71 degrees Fahrenheit (22 degrees Celsius) at no less than 50% humidity in 30 minutes with an engine RPM of 1250, after a two (2) hour heat soak. A certification document from the testing facility shall be available upon request. No Exception.
- Proposals offering ceiling mounted evaporator units in the center of the cab above or on the engine tunnel shall not be accepted as this is a safety consideration due to the lack of visibility and communication within the cab.

One (1)
05-01-6010

CAB PAINT AIR CONDITIONING CONDENSER COVER

The air conditioning condenser cover shall be made from aluminum and shall be painted to match the roof color. Plastic condenser covers will not be acceptable. No Exception.

One (1)
05-02-0047

HEATER HOSE

The heater hose inside the cab for the HVAC system shall be a premium silicone hose.

One (1)
05-02-0201

CONDENSER

The cab air conditioning system shall include one (1) low profile HE-condenser which shall be centered on the driver's side of the cab roof.

One (1)
05-02-0710

AUXILIARY COOLANT HEATING SYSTEM

The auxiliary coolant heating system shall include a diesel fired Espar heater rated at 17,000 BTU. The auxiliary heater shall be plumbed into the HVAC and engine coolant system and will include an integrated pump to circulate coolant throughout the cooling system including the engine and heat exchangers.

The heater shall automatically turn on when the coolant temperature is below 170 degrees Fahrenheit and the engine is running. The heater will automatically turn off once the coolant temperature reaches 170 degrees.

The auxiliary coolant heater shall be enclosed in a metal box and shall have a two (2) year parts and labor warranty.

ESPAR HEATER

One (1)

08-02-0125

HEATING AND COOLING CONTROLS

The HVAC system shall be controlled through all available LCS.

REAR CREW AREA CONTROLS – EVAPORATOR MOUNTED

The controls for the crew area heat and A/C shall be located on the tunnel mounted evaporator unit.

One (1)
08-02-0091

REAR CREW AREA CONTROLS – LCS PANEL

The controls for the crew area heat and A/C shall be from manual HVAC control knobs. There will be no ability to control rear HVAC from the driver or officer positions.

One (1)
08-02-0100

REAR CREW AREA CONTROLS –CENTERED OVERHEAD

The controls for the crew area HVAC system shall be mounted overhead, centered between the rear facing seating position.

One (1)
03-09-0902

SEAT MATERIAL

The seats shall include Turnout Tuff material; this urethane-coated denier nylon is water repellent to 75 PSI of water Pressure. Suitable for Heavy Duty applications, this cloth has a bursting strength of 300+ pounds per foot and surface abrasion of 1000+ cycles-Heavy Grit Wheel. Modeled after Turnout Gear, this material contains a rip-stop weave stopping unraveling if punctured standing up to hard working environments. Turnout Tuff is manufactured to meet flammability requirements including FMVSS 302, UFAC class 1, and California Fire Code Technical Bulletin No. 117 Section E.

One (1)
03-09-0920

SEAT BACK LOGO

The seat back shall include the “Rosenbauer” logo. The logo shall be centered on the standard headrest of the seat back.

One (1)
03-09-0100

SEAT AND SEAT BELT COLOR

The seats in the cab shall be gray in color with red seat belts.

One (1)
03-09-01X1

DRIVER SEAT

The driver’s seat shall be a 911 Seats Incorporated XL, wide series seat.

Standard features of this 3-point ABTS (all belts to seats) include three-inch CAM style air ride suspension, double locking tracks with 7 ¾ inches fore/aft track movement operated by an easy-access towel bar, 108 degree recline, adjustable headrest, wide contoured back with 2 way adjustable lumbar.

The seat shall feature an XL 21-inch-wide comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control) easing tailbone pressure, enhancing comfort, and reducing vibration by up to 50%. This system has Seats Inc's D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity.

The seat(s) shall have a 7-year manufactures warranty, no exception.

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

One (1)
03-09-000A

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3-point ABTS (all belts to seats). The single retractor seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

One (1)
03-09-0121

SEAT BACK

The seat back shall incorporate a standard style headrest.

One (1)
03-09-02X2

SEAT MOUNTING DRIVER

The driver's air seat shall be installed in an ergonomic position in relation to the cab dash.

One (1)
03-09-3010

DRIVER SEAT BOX STORAGE COMPARTMENT

There shall be a storage area under the driver's seat. The compartment shall be 21.25 inches wide, 22.50-inches long, and 6.25 inches high. The access opening shall be 15.00 inches wide and 4.50 inches high.

One (1)
03-09-3236

ALUMINUM ACCESS DOORS

There shall be aluminum doors provided for covering each of the driver and officer seat compartment openings. The doors shall be coated to match the interior of the cab and shall be equipped with piano-style hinges and manual latches.

One (1)
03-09-024A

OFFICER SEAT

The officer seat shall be 911 Seats Incorporated 911 Seats XL, wide series seat.

The seat shall feature 3-point ABTS (all belts to seats).

The seat shall feature a 21-inch-wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control), easing tailbone pressure, enhancing comfort, and reducing vibration by up to 50%. This system has Seats Inc's D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity. Seat to include a wide comfort back with contoured foam.

The seat(s) shall have a 7-year manufactures warranty, no exception.

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

One (1)
03-09-000A

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3-point ABTS (all belts to seats). The single retractor seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

One (1)
03-09-011A

SEAT BACK

The seat back shall include a Seats Incorporated Halo mechanical self-contained breathing apparatus (SCBA) bracket. The Positive Locking Mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall be third Party tested to ten (10) times the force of gravity.

The bracket shall include –

- Plastic-dipped rings designed to fit the full range of bottle diameters
- Vertical height adjustment to accommodate different bottle heights
- An easy achieved safe lock without risking damage to equipment
- A center cushion release mechanism

One (1)
03-09-3020

OFFICER'S SEAT BOX STORAGE COMPARTMENT

There shall be a storage area under the officer's seat. The compartment shall be 19.75 inches wide, 17.50 inches long, and 6.25 inches high. The access opening shall be 9.00 inches wide and 4.50 inches high.

Two (2)
03-09-035B

REAR FACING OUTER SEAT

Two (2) rear facing outer crew area seat(s) shall be 911 Seats Incorporated XL, wide series flip bottom seat(s).

The seat(s) shall also feature a 21-inch-wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control), easing tailbone pressure, enhancing comfort, and reducing vibration by up to 50%. This system has Seats Inc's D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity. Seat to include a wide comfort back with contoured foam.

The seat(s) shall have a 7-year manufactures warranty, no exception.

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

Belt Orientation shall pull from outboard shoulder to inboard hip

Two (2)
03-09-000A

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3-point ABTS (all belts to seats). The single retractor seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

Two (2)
03-09-011A

SEAT BACK

The seat back shall include a Seats Incorporated Halo mechanical self-contained breathing apparatus (SCBA) bracket. The Positive Locking Mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall be third Party tested to ten (10) times the force of gravity.

The bracket shall include –

- Plastic-dipped rings designed to fit the full range of bottle diameters
- Vertical height adjustment to accommodate different bottle heights
- An easy achieved safe lock without risking damage to equipment
- A center cushion release mechanism

Two (2)
03-09-038C

REAR FACING OUTER SEAT MOUNTING

Each rear facing outer seat shall be mounted facing the rear of the cab.

Two (2)
03-09-055B

FORWARD FACING CENTER SEAT

Two (2) forward facing center crew area seat(s) shall be 911 Seats Incorporated XL, wide series flip bottom seat(s).

The seat(s) shall also feature a 21-inch-wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control), easing tailbone pressure, enhancing comfort, and reducing vibration by up to 50%. This system has Seats Inc's D2 (dual density) foam combining a soft topper foam pad further enhancing comfort, and a high-density bottom foam base to promote longevity. Seat to include wide comfort back with contoured foam.

The seat(s) shall have a 7-year manufactures warranty, no exception.

Cushion reinforced with French seaming and is NFPA compliant with an occupancy sensor.

Belt Orientation- LH & RH to Door

Two (2)
03-09-000A

SEAT BELT SINGLE RETRACTOR

The seat shall feature 3-point ABTS (all belts to seats). The single retractor seat belt shall feature Ready Reach to ensure that the seat belt is easy to see and grab while in full turnout gear.

Two (2)
03-09-011A

SEAT BACK

The seat back shall include a Seats Incorporated Halo mechanical self-contained breathing apparatus (SCBA) bracket. The Positive Locking Mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall be third Party tested to ten (10) times the force of gravity.

The bracket shall include –

- Plastic-dipped rings designed to fit the full range of bottle diameters
- Vertical height adjustment to accommodate different bottle heights
- An easy achieved safe lock without risking damage to equipment
- A center cushion release mechanism

Two (2)
03-09-057A

SEAT MOUNTING FORWARD FACING CENTER

The forward-facing center seats shall be installed facing the front of the cab.

One (1)
03-09-3100

SEAT FRAME FORWARD FACING ENCLOSED

The forward-facing center seats shall include an enclosed seat box which is located and installed on the rear wall.

The seat box shall be constructed of no less than 5052-H32 .19" thick aluminum plate.

One (1)
03-09-3200

SEAT FRAME FORWARD FACING ACCESS

The seat frame shall include a cutout in the center of the wall facing the tunnel for access. The cutout shall be a minimum of 7.5”h x 28”w.

One (1)
03-09-4001

SEAT COMPARTMENT FINISH

The seat frame shall be finished to match the interior finish of the cab.

Four (4)
04-05-0200

EXTERIOR GRAB HANDLES

One (1) 18” anti-slip exterior assist handle shall be mounted behind each of the cab doors. The grab handle shall be mounted on stanchions, constructed of aluminum, and be 1.25” in diameter with a knurled finish enabling non-slip assistance with a gloved hand. The handle stanchions shall be mounted to the cab with nutserts. No Exception.

Four (4)
04-05-2060

SCUFF PLATE

The grab handles shall include a stainless steel scuff plate to protect the painted surfaces.

One (1)
04-08-0010

CAB FASCIA

The cab fascia shall offer a traditional, yet aggressive appearance, in its design and shall be constructed of work-hardened 5052-H32 aluminum. This design shall feature:

- A super structure which is fully welded to the cab, for a seamless and robust integration
- Thermoformed headlamp bezels, constructed of impact resistant, polycarbonate composite which is vacuum metalized to eliminate pealing and bubbling of a chrome type film or plating
- Traditional style headlight bezels with 4 x 6 high intensity headlights which shall add a classic look to the fascia while improving visibility

One (1)
04-08-0140

FRONT GRILLE

A prominent front grille shall punctuate the aggressive design of the cab with its outboard wing style warning light bezels and heavy framework. The front grille shall feature:

- Fabricated construction for superior strength and durability
- Stainless Steel mirror finish for a distinctive appearance
- Up to six (6) warning light locations along the mid bar for a variety of warning light combinations

One (1)
04-08-0022

LIGHT BEZEL

The front grille shall include two (2) wing light bezels. The bezels shall be constructed of a stainless material and shall be capable of holding one (1) 4" x 6" warning light in each bezel.

One (1)
04-08-0090

GRILLE LOGO

The front grille shall include a Rosenbauer logo.

One (1)
04-08-0125

FRONT GRILLE INLAY

The front grille shall include a honeycomb inlay of steel, painted black, which shall provide air flow to through the grille and provide a sporty, muscular appearance to the front of the apparatus.

The horizontal bars shall be overlaid with polished stainless steel strips.

One (1)
06-03-2025

FLUID FILLS & CHECK

For ease of maintenance and access, the following fluid checks shall be located behind the tiltable and/or removable mesh grille panel:

- Engine oil dipstick
- Engine coolant sight glass
- Power steering fluid dipstick
- Windshield washer fluid

The following fluid fills shall be located behind the tiltable and/or removable mesh grille panel:

- Power steering
- Windshield washer

Proposals including access to fluid checks through the tunnel or by raising the cab shall not be considered.

One (1)
08-00-0508

HEADLIGHTS

A quadruple Maxxima LED headlight assembly shall be provided in the fascia to enhance the look.

One (1)
08-00-0540

HEADLIGHT LOCATION

The headlights shall be located on the front fascia in the upper buckets, on each side of the cab grille.

104 OS, 105 OS, and 104 DS, 105 DS

One (1)
08-00-0608

FRONT MARKER LAMPS

The cab front shall include five (5) LED amber marker lamps above the windshield in accordance with the Department of Transportation requirements.

One (1)
08-00-061C

SIDE MARKER LIGHTS

Two (2) LED side marker light assemblies shall be mounted on the side of the cab ahead of the driver door, adjacent to the front head lamp bezel.

One (1)
08-01-0307

HEADLIGHT AND MARKER LIGHT ACTIVATION

Headlights and marker lights will activate automatically when the vehicle is shifted into gear. Operators will have the option of manually turning headlights and marker lights off or on from the LCS display.

One (1)
08-00-0603

FRONT TURN SIGNALS

Two (2) Whelen M6 LED square, front turn signal assemblies shall be provided. Each turn signal shall be mounted in an attractive façade style bezel which is an integral part of the fascia.

One (1)
08-00-0630

TURN SIGNAL LOCATION

The turn signals shall be located on the front fascia directly below the headlights, one on each side of the cab grille.

106 OS & DS

One (1)
05-00-0221

CAB TILT SYSTEM

The cab shall be a full tilt style. A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves. The cab tilt pump shall be mounted on the right-hand side of the chassis frame in front of the batteries below the frame. The mounting bracket shall be Hot Dipped Galvanized.

The dual lift cylinders shall lift the cab 45 degrees from a horizontal plane facilitating easy engine maintenance. The chassis engine shall be able to be removed if required without tilting the cab beyond 45-degrees.

The center line of the chassis cab tilt shall be a minimum of 76" from the center line of the front axle, providing a large corridor between the cab and front tire for maximum workspace and accessibility to the fan, fan belt, fan drive, air compressor, power steering pump, alternator, and air filter.

The tilt angle shall allow access to the engine and area under the cab without contacting any components mounted to the gravel shield.

The cab shall include a four (4)-point rubber isolated cab pivot and mounting system. The rear histic mounts shall be isolated from the chassis frame to reduce the transfer of road vibrations and frame torque into the cab, while providing superior handling characteristics.

The front cab pivot assemblies shall be a 1/2" A36 steel plate with a .31" thick 2-1/2" diameter tube cross member mechanically attached to the cab and frame. There shall be two (2) greaseable rubber isolated engineered bushings to reduce the transfer of road vibrations into the cab.

The cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

The cylinders shall include blocking valves (velocity fuses) which prevent motion when no control buttons are pushed. In the event of a hydraulic system failure, the valves shall retain the fluid in the cylinders.

A redundant mechanical stay arm shall automatically be engaged once the cab has been fully raised. Before lowering the cab, this device must be disengaged using the stay arm control located on the driver's side rear of the cab, providing the operator protection from high engine exhaust temperatures. The stay arm shall be safety yellow for high visibility so that it is easy to see whether the arm is in place or not. No Exception

All mounting points shall be bolted directly to the frame rail.

The cab lift safety system shall be interlocked with the parking brake. The cab tilt mechanism shall be active only when the parking brake is set, and the battery master switch is in the on position. If the parking brake is release, the cab tilt mechanism shall be disabled.

There shall be a manual pump incorporated in the event of a system failure to the cab tilt system.

A warning light shall illuminate in the cab instrument panel to indicate whenever the cab is not fully latched in the locked down position, and the parking brake is released.

One (1)
05-00-0021

CAB TILT LIMIT SWITCH

An adjustable cab tilt limit switch shall be included with the cab tilt system. The switch shall effectively limit cab's travel to avoid impact with bumper mounted items, or station ceiling clearance, while being tilted.

There shall be a safety bar to hold the cab at the new adjusted height for additional safety.

One (1)
05-00-0045

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar and the parking brake is released.

One (1)
05-00-5305

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads, model 613810, shall be provided and installed on each of the front cab doors.

The mirrors shall measure 8" wide x 19" high and shall include an integral convex mirror installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

One (1)
08-01-0823

REARVIEW MIRROR REMOTE ACTIVATION

The driver's panel shall include activation for the rearview mirrors remote function. The activation for the mirror heat shall be through the LCS display.

One (1)
05-01-5015

CAB TWO TONE PAINT

The cab surface shall be thoroughly washed with grease cutting solvent (PPG DX330) prior to any sanding. The cab surface shall then be sanded, and minor imperfections filled and sanded. The prepared surface shall then be washed again with (PPG DX330) to remove any contaminants from all surfaces to be painted.

The first coating to be applied shall be a pre-treat epoxy primer (.5 to 1.0 dry film build) for maximum adhesion to the body material. The next two to four coats shall be a polyurethane primer resurfacing agent (PPG F4936). The film build shall be 4-6 mils when dry. The primer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure a maximum gloss finish. The last step shall be an application of at least three coats of PPG FDG polyurethane two-component color (single stage). The film build shall be 2-3 mils when dry. The single stage polyurethane shall provide a UV barrier to prevent fading and chalking.

The cab shall then be painted with the specific color designated by the customer with a minimum thickness of 2.00 mils of finished paint, followed by a clear top coat not to exceed 2.00 mils.

One (1)
05-01-5020

CAB PAINT UPPER

The upper or secondary cab color shall be PPG _____ color and _____ number.

-- Upper Cab Color to be: BLACK

Note: FLNA 41727

One (1)
05-01-5021

CAB PAINT LOWER

The lower or primary cab color shall be PPG _____ color and _____ number.

-- Lower Cab Color to be: RED

Note: FLNA 32277

One (1)
05-01-5025

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet on the cab which shall start at the grille under the wings and travel 6" below the cab windshield and approximately 5" under the driver, passenger, and crew door windows.

One (1)
05-01-6051

CAB UNDERCOAT

The cab shall have an undercoat applied prior to the cab being set on the running gear. The under coat shall be a waterborne, one-component, air dry undercoat formulated to prevent chipping, cracking, and marring of painted or unpainted surfaces after exposure to high impact sand, gravel or other abrasive materials. It shall also have high corrosion resistance.

Two (2)
05-01-7000

PAINT SPRAY OUT

The customer shall be supplied with a paint spray out of their chosen color(s) for approval prior to the chassis cab exterior being painted.

One (1)
07-05-010D

FRONT AXLE

The Hendrickson SteerTek front axle beam shall be rated to carry 24,000 lbs. and consist of a fabricated box cross section construction with 100ksi plate and a continuous beam architecture to minimize stress points for added durability. The box shaped cross section resists horizontal, vertical, and twisting forces more effectively than traditional I-beam axles while helping to reduce dynamic camber and toe changes therefore a traditional I-beam axle shall not be considered. The axle shall incorporate a removable kingpin feature for ease of kingpin serviceability. The knuckles shall allow for compatibility with disc brakes mounted at the 12-o'clock position and with drum brakes and allow for wheel cut up to 45 degrees. They shall also utilize premium kingpin bushings and seals to provide enhanced protection from the elements to improve bushing life.

The axle shall have a magnetic drain plug in the hubs.

The axle shall be warranted for five (5) years or five hundred thousand (500,000) miles, whichever comes first. No Exception.

One (1)
07-05-0120

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

One (1)
07-05-0276

FRONT SUSPENSION

The suspension shall consist of multi-leaf parabolic springs with double wrapped front eye that are packaged within an integrated clamp group that allows for ease of OEM assembly on to the axle beam and reduced part count. The clamp group bolts are tightened on the top of the clamp group opposed to the traditional U-bolt on the bottom making it easier to access with a torque wrench for servicing. The spring shall also include a lower shock attachment with an upturned eye. The springs will contain threaded pin bushings to allow simplification of spring alignment as well as long service life and improved ride quality. The suspension and spring geometry will be optimized to provide improved bump steer and Ackermann.

Two ZF Sachs twin-tube shocks shall be provided with the front suspension assembly. The shocks shall be specially developed for parabolic leaf springs with a digressive characteristic curve using a patented piston system. The shocks shall feature multi-stage piston and base valves.

The combination of valves shall achieve the desired damping characteristics that are ideal for the application. The suspension shall be rated for a minimum of 24,000 lbs. No Exception.

One (1)
07-05-0384

POWER STEERING GEAR WITH ASSIST

The power steering gear shall be a TRW model TAS 85 and shall include the following:

- A balanced, hydraulic, positive displacement, sliding vane power steering pump which is gear driven from the engine
- One-piece, 2" diameter drag link for maintaining consistent wheel alignment resulting in less maintenance.
- The steering gear shall be mounted on a plane that is at a 9-degree angle in relationship to the center plane of the chassis. This mounting technique is designed to reduce the operating angle of input steering shafts. A more direct, responsive, and smoother handling vehicle will result from these unique design characteristics.
- A certified torque and geometry study by TRW shall be available upon request.

One (1)
07-06-0420

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to ensure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the apparatus manufacturer.

Alignment documentation shall be available upon request.

One (1)
07-07-0192

STEER TIRES

The steer tires shall be Michelin 445 65R 22.5 "L" tubeless radial XZY3 mixed service on/off road tread.

The steer tires shall feature:

- A stamped load capacity of 25,600 pounds per axle with a speed capacity of 65 miles per hour when properly inflated to 130 pounds per square inch

Two (2)
07-06-0436

TIRE BALANCING

All tires shall contain counter acting balancing beads. Rim mounted weights are unacceptable, no exceptions.

One (1)
07-07-0743

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.5-inch x 13.00-inch high polish aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and a polished finish that lasts.

One (1)
07-08-0203

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17" vented rotors. The disc brakes shall be provided with visual wear indicators.

The front brakes shall include brake chambers supplied by Meritor and shall be approved per application.

One (1)
07-05-030l

STEERING COLUMN AND WHEEL

The cab shall include a Douglas Autotech steering column. The steering column shall feature an 18”, four (4) spoke steering wheel located at the driver’s position; a five (5) position tilt and 2.25” telescopic adjustment. The steering wheel shall include a self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch and wiper stalk switch with Hi, Lo and intermittent settings. The steering column shall also incorporate a steering angle sensor.

The chassis shall include dual electric 12-volt horn with a minimum of 110 decibels.

One (1)
07-06-0112

REAR AXLE

A Meritor RT-58-185 tandem driving axle shall be incorporated as the rear axle for the chassis.

The axle shall feature:

- Rated capacity of 63,000 pounds
- Heavy duty Hypoid gearing for longer life, increased strength, and quieter operation
- Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage
- Rigid differential case for high axle strength, and reduced maintenance
- Rugged Dependability
- Rectangular shaped, hot formed housing with a standard wall thickness at spring seat of .56” for extra strength and rigidity
- A magnetic plug
- 5-year warranty

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

One (1)
07-06-0279

REAR SUSPENSION

The tandem axle shall feature a Raydan Air-Link AL-650 air suspension. The Air-Link AL-650 shall feature a unique air ride and walking beam suspension design which combines a super smooth ride with durability. The suspension has only two (2) moving parts for long wear and low maintenance cost. The rear tandem suspension shall have 60.00-inch axle centers.

Dual air height control valves shall be installed to ensure equal frame height on both sides of the vehicle regardless of the load, as well as prevent body twisting.

The rear suspension shall be run flat capable at reduced speeds.

The rear suspension capacity shall be rated at 63,000 pounds.

One (1)
07-06-0400

AIR RETENTION

Rear suspension air retention is a method to lock out the height control valve when the truck is conducting aerial maneuvers. This retains the air in the rear suspension and stops the height control valve from adjusting the ride height (filling or exhausting).

Intended for aerials, single or tandem rear (4x2 or 6x4), with air ride suspensions.

One (1)
07-08-0110

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a three (3) air tank, four (4) reservoir system with a minimum of 5852 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. The system shall include an anti-compounding feature. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall activate when the system air pressure is below 60 PSI.

A six (6) sensor, six (6) modulator Anti-lock Braking System (ABS) shall be installed on the front and tandem rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp

shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the tandem rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

The Meritor Wabco ABS and ESC system shall come with a three (3) year/300,000-mile parts and labor warranty.

w/ air manifold

One (1)
07-05-0502

MUD / SNOW SWITCH

A momentary control shall be provided and properly labeled "mud/snow". The control shall be a button on the LCS display. When the button is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the button again shall deactivate the mud/snow feature.

Switch will be on screen in LCS Trucks

Two (2)
07-08-0252

REAR BRAKES

The rear brakes shall be Meritor 16.50" X 8.63" S-cam drum type.

The rear brakes shall include brake chambers supplied by Meritor and shall be approved per application.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall

feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

Two (2)
07-06-0300

REAR SHOCK ABSORBERS

Shock absorbers shall be supplied by the suspension manufacturer and installed on the rear axle suspension.

One (1)
07-06-0351

REAR AXLE DIFFERENTIAL CONTROL

The tandem axles shall include an inter-axle differential lock which shall allow both axles to be engaged as drive axles.

One (1)
08-01-0914

INTERAXLE DIFFERENTIAL LOCK CONTROL ACTIVATION

The inter-axle differential lock control shall be activated through LCS.

One (1)
07-06-0352

REAR AXLE DIFFERENTIAL CONTROL

The rearward axle of the tandem axles shall include a driver controlled differential lock. This shall allow the main differential to be locked and unlocked when encountering poor road or highway conditions, where maximum traction is needed. The differential lock is to be engaged at approximately 1 mph and is not for use at speeds greater than 25 MPH.

The differential lock shall be controlled by a switch within easy reach of the driver. The light on the switch shall illuminate with positive engagement of the differential control.

One (1)
08-01-0923

REAR AXLE DIFFERENTIAL CONTROL ACTIVATION

The rear axle driver controlled locking differential control shall be activated through LCS display.

One (1)
07-07-0451

REAR TIRES

The rear tires shall be Michelin 315/80R 22.5 20PR “L” tubeless radial XDN2 Grip all weather tread.

The rear tires shall feature:

- A stamped load capacity of 33,080 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 130 pounds per square inch

May Cause Chunking in the application

Eight (8)
07-06-0436

TIRE BALANCING

All tires shall contain counter acting balancing beads. Rim mounted weights are unacceptable, no exceptions.

One (1)
07-07-0834

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, heavy duty, 22.50-inch X 9.00-inch high polish aluminum wheels. Each outer wheel shall have a polished aluminum finish on the exterior surface and each inner wheel shall have a machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

One (1)
07-07-0620

VALVE STEM EXTENSION - TANDEM AXLE

To allow for easy checking and inflation of the rear inner tires shall be equipped with a multi-layer valve stem extension. The layers shall be as follows: starting from the inner to outer layer - a stainless-steel metal core, an air tube, a stainless-steel jacket, a protective cover.

One (1)
07-07-0993

VEHICLE TOP SPEED

The top speed of the vehicle shall be programmed at approximately 60 MPH +/-2 MPH at the governed engine RPM.

One (1)
07-07-099S

Complies with NFPA 1900-24 7.16.2 and 7.16.3 as applicable.

One (1)
07-08-0189

AIR TANK BRACKETS & STRAPS

The air tank(s) shall be mounted to the frame rail with brackets that are hot dipped galvanized thereby creating a barrier and cathodic protection from corrosion and eliminating the requirement for finish paint and the subsequent requirements for touch up paint and/or total repaint after a period of time due to nicks, chips and corrosion. Powder coated or painted air tank brackets shall not be accepted. No exception.

All of the air tank straps shall be plastic coated stainless-steel cable. No Exception.

One (1)
07-08-0302

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

In addition to the mechanical rear brake engagement, the front service brakes will also engage via air pressure, providing additional braking capability.

One (1)
08-02-0130

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the driver's side dash to the right of the steering column within easy reach of the driver.

One (1)
07-08-0410

AIR DRYER

The brake system shall include a Wabco System Saver 1200 Plus air dryer with an integral 100-watt heater with a Metri-Pack sealed connector. The system shall have an integrated purge volume and integrated governor.

The system shall have the following features:

- Premium desiccant provides greater water adsorption
- Replaceable spin on cartridge for simple maintenance
- Compact light weight design
- Pressure relief safety valve
- Turbo cut-off valve for boosted compressor applications
- Service components are external for easy replacement
- Common service components proven for reliability and quality
- Integrated with the air governor.

One (1)
07-08-0558

MOISTURE EJECTORS

Heated, automatic moisture ejectors with a manual drain provision shall be installed on all reservoir tanks in the air supply system.

One (1)
07-08-0570

AIR SUPPLY LINES

A dual air system plumbed with color coded reinforced nylon tubing air lines shall be installed on the chassis. The primary (rear) brake line shall be green, the secondary (front) brake line orange, the parking brake line yellow and the auxiliary (outlet) will be black, in accordance with SAE standards. No Exception.

Brass push-lock type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

One (1)

07-08-0725

AIR HORN RESERVOIR

One (1) air tank, with a 1200 cubic inch reservoir, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

One (1)
07-09-001T

FRAME

To avoid frame cracking and failure over time, the top flange of the frame adjacent to the engine installation shall have a tapered design. Notches for engine components shall not be accepted due to fatigue and the potential for cracking.

The chassis frame shall consist of three (3) "C" style parallel rails, constructed of high strength low alloy and shall feature the following:

- A Stenx **MODEL 110XF** 10.19" high by 3.63" deep cold rolled steel frame or equivalent.
- Inner channel measuring 9.31" high x 3.25" deep x .25" thick
- Third channel measuring 8.69" high x 3.00" deep x .25" thick
- The 10.19" frame height shall be maintained throughout the entire length of the frame to allow for maximum storage capacity for the entire apparatus.
- If frame rails that are larger than those specified are to be utilized, the maximum height of each frame rail shall not exceed 10.25" at any point on the frame rail. This will ensure the lowest possible vehicle center of gravity allowing maximum stability as well as providing the lowest body height possible.
- Frame rail shall have a consistent frame web throughout the entire length.
- The entire frame rail design shall be manufactured in the United States of America and readily available on the aftermarket.
- Grade 8 Structural fasteners, Huck bolts shall not be acceptable. No Exception.
- The hardware used for the chassis shall be corrosion resistant. The process shall be dip-spin-bake coated with two coats of zinc/aluminum metal flake coating in an inorganic binder. Coating one is to be zinc flake and coating two is to be aluminum flake. The zinc flakes sacrificially corrode to protect the base metal. The aluminum flakes prolong the life of the zinc. Salt fog test life, based on ASTM B117 on unassembled fasteners, is 1000 hours to red rust. The same test on assembled fasteners is 750 hours to red rust. The two-step coating is RoHS compliant as it eliminates the hexavalent chromium used in the passivation of electroplated zinc coatings to create yellow zinc (zinc dichromate). The elimination of the zinc plating also greatly reduces the likelihood that hydrogen embrittlement will occur. Hydrogen embrittlement is a side effect of electroplating that reduces toughness and can lead to fracture. No Exception
- Manufacturer's lifetime warranty

The frame ratings shall be as follows:

- 110,000 PSI minimum yield strength high strength low alloy steel
- Minimum Resisting Bending Moment (RBM) of 3,572,000-inch pounds per rail

To avoid frame cracking and failure over time, the top flange of the frame adjacent to the engine installation shall have a tapered design. Notches for engine components shall not be accepted due to fatigue and the potential for cracking. No Exceptions.

UNDER-FRAME REINFORCEMENT

An under-slung frame reinforcement shall be installed below the frame rails in the transmission area to increase the vertical rigidity of the frame.

The under-frame reinforcement provides:

- Enhanced handling
- Improved ride quality
- Increase resistance to frame and cross member fatigue
- Enhanced vehicle stability providing improved safety to occupants

CROSS MEMBERS

There shall be a minimum of seven (7) steel plate cross members installed on the apparatus.

- 50,000 psi minimum yield strength steel plate cross members
- Manufacturer's lifetime warranty to match frame warranty. No Exceptions
- Installed with one-piece cross member gusset to maximize vertical strength and minimize cross member flex
- Crossmembers can be inverted when required to allow for PTO drive line installation without the need for notching or modifying the cross members in any way. No Exceptions.

FRONT FRAME EXTENSION

A single piece 80,000 PSI steel extension shall be installed on the front of the frame rails.

- Reduces frame flex which translates into improved vehicle handling and ride quality
- Designs using multiple piece, bolt together extensions will not be acceptable since they are prone to more flexing, possible frame failure and cab cracking
- Allows radiator to be removed through the bottom of the frame extension without tilting the chassis cab
- Minimizes damage to the chassis cab in the event of frontal impact accident
- Maintains structural integrity of the chassis frame rails while attaching bumper extensions of varying lengths
- Splayed or notched frame rails and/or extensions shall not be accepted
- Provides foundational strength and stability of the cab tilt system which provides superior access to engine and cooling components

One (1)
07-09-0138

FRAME FINISH

Prior to assembly, each frame rail section and cross members shall be hot dip galvanized. The galvanizing process will permeate each frame section to prevent rust and corrosion and not be merely an applied coating. The galvanized frame sections shall be provided in the natural finish eliminating the requirement for finish paint and the subsequent requirements for touch up paint and/or total repaint after an amount of time due to nicks, chips, and corrosion.

Galvanizing shall provide a barrier and cathodic protection from corrosion. During the galvanizing process, the complete frame sections and cross members shall be immersed in molten zinc; except for the cross member that contains the engine mounts. Through diffusion, the zinc shall bond to the steel at the molecular level. The resulting zinc coating shall provide a barrier that shields the steel from the environment.

FRONT FRAME EXTENSION FINISH

The front frame extension shall be hot dipped galvanized to resist weather, dirt and other corrosive material.

Proposals offering powder coated or painted frames shall not be accepted. No Exceptions.

One (1)
10-05-4218

BUMPER

The chassis shall feature a standard, two (2) rib 12" high by 102" wide wrap around style bumper constructed from highly polished, 10 gauge, 316 stainless steel.

Integral stainless steel bumper "wings" shall extend from the bumper to the cab.

The bumper shall be mounted to an eighteen inch (18") long chassis frame extension.

A contoured apron/gravel shield fabricated from NFPA compliant, slip-resistant polished aluminum shall enclose the area between the bumper and the cab.

One (1)
10-04-2720

FRONT BUMPER COMPARTMENT

A recessed fire hose compartment constructed from smooth aluminum shall be installed in the center of the front bumper extension. Water drain holes shall be provided in the bottom.

--capacity for 150" of 1.75"hose and nozzle

One (1)
10-04-3160

BUMPER COMPARTMENT DOOR

One (1) raised aluminum tread plate door for the front bumper compartment shall be supplied. The door shall have a minimum 1" lips on all sides surrounding the entire compartment opening, a stainless steel hinge at the rear and a latch to secure the compartment.

One (1)
08-00-0719

COMPARTMENT LIGHT

One (1) vertically mounted LED strip light shall be installed inside the compartment. The light shall have a polycarbonate lens to eliminate breakage from impact and eliminate heat build up and be approximately 30" in length.

One (1)
08-00-071A

MOUNTING

The compartment light shall be mounted in the door jamb to illuminate the compartment interior.

Two (2)
10-04-3460

BUMPER COMPARTMENT DOOR SHOCK

A gas shock shall be supplied to hold the front bumper compartment door in the open position.

One (1)
07-13-0303

TOW HOOKS

Two (2) tow hooks shall be mounted to the bumper extension under the bumper towards the forward section of the extension. The tow hooks shall be steel and shall be powder coated black.

One (1)
06-00-1850

ENGINE

A Cummins X15 15-liter diesel fueled; turbo charged engine shall feature the following:

- One of the highest power to weight ratios in its class
- Heavy-duty replaceable wet liners, roller followers, by-pass oil filtration with replaceable spin on cartridge and targeted piston cooling for longer service in tough work environments
- Improved cooled EGR system
- 912 cubic inches of displacement
- High pressure common rail fuel system producing a precise quantity of fuel at ultra-high pressures
- Fully integrated, robust electronic engine controls
- Electric fuel lift pump. No Exceptions.
- Standard drain plug

The engine shall be coupled with a Holset VGT™ (Variable Geometry Turbocharger).

The engine shall be filled with Citgo brand Citgard 500 (or equivalent) SAE 15W40 CJ4 low ash engine oil for proper engine lubrication.

The engine shall be EPA certified to meet the 2027 emissions standards without compromising performance, reliability or durability using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an original equipment manufacturer installed oil drain plug.

The engine shall include programming which will govern the top speed of the vehicle.

ENGINE PLACEMENT

The engine shall be a maximum of 36" from the center line of the front axle to the front face of the engine block. The engine valve cover shall be a maximum of 23" from the top of the frame.

The engine placement shall provide optimal weight distribution to the front axle to enhance vehicle handling. More weight out in front of the front axle can cause a “fulcrum effect” and cause unsafe “bump steer” conditions.

The engine shall be mounted in a position that provides for the lowest possible height of the interior engine tunnel. An engine tunnel height from the floor of the chassis cab shall be no more than 21” high inside the cab.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increase the system's component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be integrated in the air dryer assembly.

One (1)
06-00-1856

HORSEPOWER

The engine shall have 605 horsepower at 1800 RPM, with a governed speed of 2100 RPM.

The engine shall have 1850-foot pounds of torque at 1150 RPM.

One (1)
06-02-1133

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, one (1) piece eleven (11) blade Horton clutched type fan drive, and shroud.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails, the fan shall engage to prevent engine overheating due to a fan clutch failure.

One (1)
06-04-3000

FAN CLUTCH

The clutch fan shall automatically engage in pump mode (when applicable).

One (1)
06-02-1526

AUXILIARY ENGINE BRAKE

A Cummins engine compression brake, for the six (6) cylinder engine, shall be provided. The engine compression brake shall:

- Activate upon 0% accelerator when in operation mode and activate the vehicle's brake lights.

TRANSMISSION PRE-SELECT

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed. The transmission shall assist the secondary braking system, thereby slowing the vehicle.

One (1)
08-01-0197

AUXILIARY ENGINE BRAKE CONTROL

An auxiliary engine brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled via an off/low/medium/high virtual switch on the LCS display. The multiplex system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

One (1)
06-03-1010

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle will be set at 1250 RPM. The high idle will be operational only when the parking brake is applied, and the truck transmission is shifted into neutral.

One (1)
06-03-1024

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. The high idle shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output.

This device shall operate only when the control switch is activated, and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to engage manually through a virtual switch in the LCS Display, or automatically re-engage when the brake is set, and the transmission is placed in neutral. A LCS Display shall indicate the high idle speed control is active.

One (1)
06-05-3031

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located behind the fascia.

The filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame.

This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The intake shall also feature a cyclone style water separator to remove unwanted moisture from incoming air.

The engine shall include an air intake filter which shall be bolted to the frame and located under the front of the cab. This dry type of filter shall ensure dust and debris is safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The filter must have a capacity of no less than 1350 cubic feet of air per minute. The filter paper media must be of a flame retardant treated material. An electric air filter restriction indicator shall also be included with the system.

One (1)
06-06-3823

ENGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter (DPF), a diesel oxidation catalyst, and a selective catalytic reduction catalyst (SCR) to meet current EPA standards.

The selective catalytic reduction catalyst shall utilize a diesel exhaust fluid solution consisting of urea and purified water to convert nitrogen oxide into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be injected into the system between the DPF and SCR chambers.

The system shall utilize 0.065-inch-thick stainless steel exhaust tubing between the engine turbo and the DPF.

The after-treatment canister through the end of the tailpipe shall all be connected with zero leak gasketed clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires with an exhaust gas diffuser.

The diffuser shall lower exhaust gas temperatures during the regeneration cycle.

One (1)
06-06-3972

Exhaust Exit, Officer Side, X15, RM Aerial

One (1)
06-06-4006

DIESEL EXHAUST FLUID TANK

There shall be a molded cross linked polyethylene tank for the Diesel Exhaust Fluid (DEF). The tank shall have a capacity of not less than five (5) usable gallons (18.92 Liters) and shall be mounted on the left-hand side of the chassis frame in front of the batteries below the frame. The mounting bracket shall be Hot Dipped Galvanized.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

One (1)
06-06-4100

DIESEL EXHAUST FLUID TANK

There shall be an access door provided in the top rear step of left side crew area for access to the DEF tank.

One (1)
06-08-0100

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gases at the exhaust outlet.

One (1)
06-08-0200

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

One (1)
08-02-0140

DIESEL PARTICULATE FILTER CONTROLS

Provide DPF system status annunciation indicator lights, lights shall be installed on driver dash to alert driver when regeneration is needed and when DPF is in an active re-generation cycle.

Warning systems shall provide DEF low level warning.

Driver's dash shall be provided with two (2) controls for the Diesel particulate filter; one (1) manual regeneration switch to activate a regeneration cycle manually when passive burn is unobtainable due to driving conditions; and one (1) Regen "Inhibit Switch".

Activations will be provided in the service screen of the Driver Display for One LCS trucks.

The switches shall be located in a covered location for V-Mux and P2P trucks.

One (1)
06-04-2004

ENGINE COOLING SYSTEM

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system requirements.

The system shall include and feature the following:

- A vertically stacked charge air cooler producing the maximum cooling capacity for the engine. Proposals offering horizontally stacked charge air cooler shall not be acceptable. No Exceptions
- The charge air cooler and radiator shall measure not less than 1382 square inches
- A surge tank with a low coolant probe and capable of removing entrained air from the cooling system, with built in sight glass
- Radiator re-circulation shields to prevent heated air from re-entering the cooling system and affecting performance
- Mounts allowing the entire radiator to drop through the frame for service when needed. No Exceptions
- Engine placement shall provide a minimum of 8” between the engine fan and radiator to maximize the airflow and cooling of the engine.
- A Spin on Element water filter with corrosion inhibitor shall be provided for the cooling system. No Exception.
- The coolant filter shall be provided with two (2) shut off valves, one (1) one inlet and one (1) outlet. No Exception.
- Cooling system shall be tested and certified by the engine manufacturer

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include constant tension spring clamps.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F.

Supplemental coolant additives (SCA) are not required as this is part of the extended life coolant makeup.

One (1)
06-04-4010

ADDITIONAL COOLANT SHUT OFF VALVE

An additional coolant shut off valve with connection shall be installed in the chassis coolant lines with a connector. This shall allow for the installation of an additional heater such as a pump compartment heater without draining the coolant system.

One (1)
06-05-1013

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. This pump heat exchanger shall circulate water from the fire pump to the heat exchanger thereby reducing the temperature of the coolant for the engine. The heat exchanger shall be designed to prohibit water from the fire pump from encountering the engine coolant.

One (1)
07-01-0132

TRANSMISSION

The drive train shall include an Allison model EVS 4000 torque converting automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing; one (1) in the 8:00 o'clock position and one (1) in the 1:00 o'clock position.

The transmission shall include two (2) internal oil filters and Allison approved transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The Gen V transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

The transmission gear ratios shall be:

1st	3.51:1
2nd	1.91:1
3rd	1.43:1
4th	1.00:1
5th	0.74:1
6th	0.64:1 (if applicable)
Rev	4.80:1

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic oil drain plug.

AUTOMATIC NEUTRAL

The transmission shall be provided with an automatic neutral. When the parking brake is applied the transmission automatically returns to neutral.

One (1)
07-01-0500

TRANSMISSION FLUID

The transmission shall include two (2) internal oil filters and Allison approved transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

One (1)
07-02-0006

TRANSMISSION SHIFT SELECTOR

An Allison 6th GEN pressure sensitive range selector touch pad shall be provided and located on the tunnel to the right of the driver.

The shift selector shall provide an indicator on the digital display and shall alert the driver/operator when a specific maintenance function is required.

One (1)
07-02-0012

PTO LOCATION

The transmission driven power takeoff (PTO) shall be mounted in the 1:00 o'clock position.

One (1)
07-02-0052

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select the fifth speed operation without the need to press the mode button.

One (1)
07-02-0066

TRANSMISSION PROGRAMMING

The EVS Vocation Package Number 198 for the fire service for this apparatus as a Pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector which requires re-selecting the drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. The transmission will detect the pump engaged signal and automatically select or deselect fourth gear lock-up. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A nine (9) pin diagnostic connector will be provided.

The trans module shall contain the following circuits:

FUNCTION ID	DESCRIPTION	WIRE ASSIGNMNET
C1	PTO Drive Interface Output 1	142
J	Fire Truck Pump Mode (4th Lockup)	122/123
G1	PTO Drive Interface Output 1	130
C	Range Indicator	145 (4th)
	Signal Return	103

One (1)
07-02-0253

DRIVELINE

All drivelines shall be heavy duty metal tubes equipped with Spicer 1810 series universal joints.

The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.

One (1)
07-03-1020

PTO 1 O'Clock Allison 4000EVS

One (1)
07-03-1040

POWER-TAKE-OFF

An electrical start-stop "hot shift" PTO shall be mounted to the transmission. The PTO shall be connected to the hydraulic pump and shall supply power for all aerial and outrigger operations. Electrical safety wiring shall require that the vehicle be in neutral and the parking brake set before the PTO will operate. A "PTO Engaged" indicator light is installed in the cab of the apparatus.

One (1)
07-03-1060

HYDRAULIC PUMP

The hydraulic pump and reservoir shall be a separate system independent of other vehicle functions. The pump shall be load sense type that will react to demand of the aerial without imposing unnecessary horsepower demands on the engine.

The lift, extension and tilt cylinders shall include holding valves for maximum safety in the event of pressure loss or hydraulic line failure. Flow control shall be electric, remote controlled, proportional type installed to insure smooth operation of the aerial. All hydraulic valves shall be equipped with manual overrides for emergency operation and/or manual push button mechanical overrides in event of electrical failure.

The hydraulic pumping system shall be capable of providing full performance at any engine speed.

Right Rotation:

The hydraulic pump right rotation shall have a displacement of 84cc with an SAE "C' 2-bolt flange and the shaft size shall be 1" 15 Tooth SAE Spline Shaft. The pump shall rotate right /CW (clockwise).

One (1)
07-04-0108

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1065 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water-in-fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

One (1)
07-04-0320

FUEL SYSTEM

The fuel tank shall have a capacity of sixty-eight (68) gallons/two hundred fifty-seven (257) liters.

The tank shall offer:

- Beveled Rear Corner to allow for better angle of departure.

- A vent port which will facilitate venting to the top of the fill neck for rapid filling without any “blow-back”
- Two (2) 2” NPT fill ports for left-and-right-hand fill with a .5” NPT drain plugs centered side to side, 9" from the front of the tank
- A roll over ball check vent for temperature related fuel expansion and draw

- A design including dual draw tubes and sender flanges
- A baffled design which shall be constructed of steel
- A black Powder Coated exterior to ensure corrosion resistance

The fuel tank shall be mounted below the frame, behind the rear axle. There shall be two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank, allowing the tank to be easily lowered and removed for service purposes.

The strap hanger material shall be stainless-steel. No Exceptions.

For isolation of vibration and movement, rubber isolating pads shall be provided between the tank and the hanger strap assemblies. The tank straps shall be attached to rubber coated cross members which help isolate the tank from frame flex.

Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

All fuel lines shall be connected with steel fittings with all fittings pointed towards the right side (curbside) of the chassis.

The chassis fuel lines shall feature an additional 4' of length provided so the tank can be easily lowered and removed for service purposes which shall be coiled and secured at the top of the tank.

One (1)
07-04-0216

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black aramid braided lines with a fiber outer braid. The fuel lines are compatible with bio-diesel fuel blends and utilize reusable steel fittings.

One (1)
07-04-0225

FUEL SHUTOFF VALVE

Two (2) fuel shutoff valves shall be installed at the fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

One (1)
07-04-0230

FUEL COOLER

The cross-flow air to fuel cooler shall be all aluminum and shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located reward of the battery box, under the frame.

The fuel cooler shall incorporate a fan for improved heat transfer.

The fuel cooler shall be mounted to the frame using hot dipped galvanized brackets. Powder coated or painted brackets shall not be acceptable. No exception.

One (1)
08-00-0420

ALTERNATOR

The charging system shall include a 320-Amp Delco Remy 40SI 12-volt alternator.

The alternator shall feature:

- Premium brushless design providing added durability and life
- Provide the highest efficiency resulting in less horsepower requirements
- Remote sense technology in extending the life of the battery
- 70% efficiency
- 3 Year warranty

One (1)
08-00-0096

LCS ELECTRICAL SYSTEM

There shall be a 12-volt direct current single starting electrical system providing power to all components for the cab and chassis. The system shall feature:

- A Rosenbauer One LCS Multiplexed system
- 125°C high temperature, flame retardant loom
- All SAE wiring color coded and labeled as to its function
- Wiring which is cross link with 125°C insulation
- A suppressed system in accordance with SAE J551

Serviceable components in the electrical system will be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload.

General protection circuit breakers will be a combination of automatic and manual reset breakers. This will provide durability and capacity maximization of the electrical system. When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

EMI/RFI PROTECTION

To prevent erroneous signals from crosstalk contamination and interference, the electrical system

will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing may be used, as allowed by NFPA, to extrapolate results on updated systems.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

ELECTRICAL HARNESSING INSTALLATION

To ensure rugged dependability, all wiring harnesses installed by the apparatus manufacturer will conform to the following specifications:

- SAE J1128 - Low tension primary cable
- SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring
- SAE J163 - Low tension wiring and cable terminals and splice clips
- SAE J2202 - Heavy duty wiring systems for on-highway trucks
- NFPA 1901 - Standard for automotive fire apparatus
- FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks, and buses
- SAE J1939 - Serial communications protocol
- SAE J2030 - Heavy-duty electrical connector performance standard
- SAE J2223 - Connections for on board vehicle electrical wiring harnesses NEC - National Electrical Code
- SAE J561 - Electrical terminals - Eyelet and spade type
- SAE J928 - Electrical terminals - Pin and receptacle type A

For increased reliability and harness integrity, harnesses will be routed throughout the cab and chassis in a manner which allows the harnessing to be laid into its mounting location. Routing of harnessing which requires pulling of wires through tubes will not be allowed.

Wiring will be run in loom or conduit where exposed and have grommets or other edge protection where wires pass through metal. Wiring will be colored, function and number coded. Wire colors will be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires using a single wire color for all wires will not be allowed.

Function and number codes will be continuously imprinted on all wiring harness conductors at 3.00" intervals. All wiring installed between the cab and into doors will be protected by an expandable rubber boot to protect the wiring. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

- All wire ends not placed into connectors will be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap will not be allowed.
- All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
- For low cost of ownership, electrical components designed to be removed for maintenance will be quickly accessible. For ease of use, a coil of wire will be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- A corrosion preventative compound will be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation of the plug.
- Any lights containing non-waterproof sockets in a weather-exposed area will have corrosion preventative compound added to the socket terminal area.
- All electrical terminals in exposed areas will have protective Coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps will be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields will be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust will be protected by a heat shield.
- Cab and crew cab harnessing will not be routed through enclosed metal tubing. Dedicated wire routing channels will be used to protect harnessing therefore improving the overall integrity of the vehicle electrical system. The design of the cab will allow for easy routing of additional wiring and easy access to existing wiring.
- All braided wire harnesses will have a permanent label attached for easy identification of the harness part number and fabrication date.
- All standard wiring entering or exiting the cab will be routed through sealed bulkhead connectors to protect against water intrusion into the cab.

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer will conform to the following requirements:

- SAE J1127 - Battery Cable
- SAE J561 - Electrical terminals, eyelets and spade type
- SAE J562 - Nonmetallic loom
- SAE J836A - Automotive metallurgical joining
- SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring

- NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing will be installed utilizing the following guidelines:

- All battery cables and battery harnesses will have a permanent label attached for easy identification of the harness part number.
- Splices will not be allowed on battery cables or battery cable harnesses.
- For ease of identification and simplified use, battery cables will be color coded. All positive battery cables will be red in color or wrapped in red loom the entire length of the cable. All negative battery cables will be black in color.
- For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus will be coated to prevent corrosion.

ELECTRICAL COMPONENT INSTALLATION

All lighting used on the apparatus will be, at a minimum, a two (2) wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding will not be allowed.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests will be recorded and provided to the purchaser at time of delivery.

SUMMARY OF LOAD MANAGEMENT SYSTEM

In the LCS electrical system there will be four pre-defined Load Manager Trigger points spaced apart in 0.4 Volt increments. Each vehicle function is preset to turn OFF if node voltage falls below a certain level. The trigger points are configured as shown below.

Load Manager Trigger Points:

1: 12.5-V Load Shed Region 1 (12.5 - 12.1 V)
2: 12.1-V Load Shed Region 2 (12.1 - 11.7 V)
3: 11.7-V Load Shed Region 3 (11.7 - 11.3 V)
4: 11.3-V Load Shed Region 4 (11.3 - 0 V)

When the voltage of a Load Managed device recovers back above the trigger point, there will be an additional 30 seconds before the Output channel is turned back ON. This buffering time is to ensure that the added load doesn't immediately pull the voltage back below the trigger point.

Below are the standard voltage managed outputs that will be triggered off at 12.1 V.

HVAC FAN MED
HVAC FAN HIGH
HVAC FAN LOW
AUX DEFROST FANS

A/C CONDENSER FANS RLY
A/C COMPRESSOR CLUTCH

One (1)
04-04-1312

12-VOLT POWER POINTS

There shall be one (1) 12-volt DC power point and one (1) USB/USB-C power point provided and mounted in the driver's side of the dash. They shall be within easy reach of the driver; and shall be wired directly to the battery.

One (1)
04-04-1332

12-VOLT POWER POINTS

There shall be one (1) 12-volt DC power point and one (1) USB/USB-C power point provided and mounted in the officer's side of the dash. They shall be within easy reach of the officer; and shall be wired directly to the battery.

One (1)
08-01-006Q

The driver's side switch panels shall be black.

One (1)
08-01-0082

DISPLAY - BLACK

One (1) LCS display shall be located on the driver's side dash.

The LCS display shall feature:

- A 10" full color LCD touch screen
- A message bar displaying important messages requiring acknowledgement by the user
- Six (6) push button style controls on either side of the screen for function control
- Eight (8) push button style controls located below the screen for screen navigation
- Two Camera inputs for video feeds – use of video switchers can increase number of cameras
- There shall be an image which indicates any open cab door with a visual display.

The LCS display shall measure approximately 12.375" wide x 8.125" in height.

One (1)
08-01-0085

DRIVER SWITCHES

The driver display panel shall include two power points in the upper right corner and no rocker switch locations.

One (1)
08-01-008A

LCS DISPLAYS - BLACK

One (1) LCS display shall be located on the officer's side of the dash.

The LCS display shall feature:

- A 10” full color LCD touch screen
- A message bar displaying important messages requiring acknowledgement by the user
- Six (6) push button style controls on either side of the screen for function control
- Eight (8) push button style controls located below the screen for screen navigation
- Two camera inputs for video feeds – use of video switchers can increase number of cameras
- There shall be an image which indicates any open cab door with a visual display.

The LCS display shall measure approximately 12.375” wide x 8.125” in height.

One (1)
08-01-008G

ALUMINUM DASH OFFICER SWITCHES

The officer switch panel shall include two power points in the upper right corner and no rocker switch locations (aluminum dash option only).

One (1)
08-02-0176

ACCESSORY POWER DISTRIBUTION PANEL

An accessory power distribution panel shall be installed. The panel shall feature twelve (12) blade type fuses, a ground section, and shall be protected by a 40-amp fuse. panel comes with a protection cover and shall be capable of carrying up to a maximum 40- amp battery direct load.

-- Power Distribution panel to be located behind the Officer seat

One (1)
08-03-0110

COMMUNICATION ANTENNA BASE

A communications antenna base shall be provided and mounted on the cab roof.

--305 OS

One (1)
08-03-0231

COMMUNICATION ANTENNA CABLE ROUTING

The cable routing for the communication antenna shall terminate under the dash panel.

One (1)
08-02-0611

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position

- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Service Brake
- Engine Hours
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type A or B USB connection point, remotely mounted in the left side foot well of the cab. The latest software shall be available for download from the Weldon website.

SEAT BELT WARNING

With this option, the seat belt warning system will still be integrated and displayed in the LCS Control system. The system shall activate an individual warning indicator for each seat on the LCS Display.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also be activated when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have their respective seat belts fastened.

One (1)
08-01-0008

CAB INSTRUMENTATION

The instrumentation panel within the cab shall feature a gauge panel which shall include three (3) 5"diameter information centers, telltale indicator lamps, control switches, alarms, and a LCS diagnostic panel.

The gauges shall be easy to read including red backlighting. The instrument panel shall contain the following gauges and indictors:

The middle information center shall include:

- A programmable speedometer to read either 0 to 140 MPH or 0 to 140 KM/H
- An amber telltale lamp indicating the Check Engine
- An amber telltale lamp indicating MIL Engine Emissions System Malfunction
- A red telltale lamp indicating Stop Engine
- A tachometer gauge with 0-3,000 RPM

The right-hand side information center shall include:

- A gauge to display the engine oil pressure with high and low-level indicators and stop engine alarm
- A fuel level gauge with a low fuel indicator and alarm
- An LED bar displaying 4 stages of the level for the Diesel Exhaust Fluid (DEF) with a refill indicator
- A voltage gauge with low voltage indicator
- A water temperature gauge with high water temp indicator and alarm

The left-hand side information center shall include:

- A primary air PSI gauge including low air and high air warning displays
- A secondary air PSI gauge with low and high air warning indication

An LCD diagnostic display, located in the left-hand side information center shall include digital readouts for the following:

- Odometer
- Transmission oil temp
- Engine oil temp
- Speedometer
- Engine hours
- Engine and transmission code
- Exhaust temp
- Engine coolant temp
- Engine oil PSI
- Turbo boost PSI
- Primary air pressure
- Secondary air pressure
- Engine load %
- Engine torque
- Battery volts
- Fuel level %
- Vehicle speed
- RPM
- DEF level
- Instant fuel economy
- Average fuel economy
- Engine hours
- Capable to record three trips, each shall be include:
  · Trip distance
  · Fuel economy
  · Fuel used
  · Idle fuel used
- The LCS screen shall also provide diagnostic capability

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located below the middle information center. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols. The following indicator lamps shall be located on the Telltale panel:

BLUE Indicator Lights

- High Beam Headlight

GREEN Indicator Lights

- Right Turn Indicator
- Left Turn Indicator
- Battery On (Always On)

YELLOW Indicator Lights

- Particle Filter Regeneration (DPF)
- Regeneration Inhibit (Switch Engaged)
- Air Intake Restriction
- High Exhaust System Temperature (HEST)
- Wait to Start (when applicable)
- ATC (Automatic Traction Control) (when applicable)
- Water in Fuel

RED Indicator Lights

- Low Engine Coolant Level
- Air Bag Warning (when applicable)
- Check Transmission
- High Transmission Temperature
- ABS
- Parking Brake

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.

Alarm silence: Any active audible alarm will be able to be silenced with a button on the right side of the LCS screen.

INDICATOR LAMP AND ALARM PROVE-OUT

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

DIAGNOSTIC PANEL

A diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved trouble shooting providing a lower cost of ownership. The panel shall be accessible while standing on the ground and located inside the driver's door to the left of the steering column. Diagnostic switches shall allow engine and ABS systems to provide blink

codes should a problem exist.

The diagnostic panel shall include:

- Engine diagnostic port
- V-Mux USB diagnostic port (when applicable)
- Engine diagnostic switch (blink codes flashed on check engine telltale indicator)
- Diesel particulate filter regeneration switch (when applicable)
- Diesel particulate filter regeneration inhibit switch (when applicable)

The enclosed diagnostic panel, accessible through the HVAC access panel shall include:

- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (when applicable)

One (1)
08-00-0322

BATTERIES

The single start electrical system shall include six (6) group 31 1000 CCA batteries.

The batteries shall feature:

- A 200-minute reserve capacity
- 4/0 dual path starter cables per SAE J541
- Heat-shrink and sealant encapsulated ends on the cables
- Maintenance free

One (1)
08-00-023A

BATTERY COMPARTMENTS

A well ventilated, hot dipped galvanized battery storage compartment shall house the batteries on the officer and driver side of the chassis and shall be located so as to offer easy access to the batteries when the cab is tilted.

Each battery compartment shall feature:

- Hot dipped galvanized 3/16" steel construction.
- A complete floor of heavy duty, industrial grade, recycled Turtle Tile brand interlocking matting
- A hinged hot dipped galvanized steel cover with two (2) magnets shall be utilized providing easy access to the batteries. No tools shall be required to gain access to the batteries.
- When in the open position, the hinged door shall rotate past the bottom of the battery compartment, allowing for a sweep out style floor and removal of the batteries, when necessary, without the inference of a lower lip. No Exceptions.

One (1)
08-00-0240

BATTERY CABLES

The starting system shall include cables which shall be protected by a 275-degree F, minimum high temperature flame retardant loom.

The cables shall be in a loom to help keep out dirt, dust and debris.

One (1)
08-00-0251

BATTERY JUMPER STUD

The starting system shall include battery jumper studs installed in the forward most portion of the driver's side lower step.

The studs shall allow the vehicle to be jump started, charged, or the cab raised in an emergency in the event of battery failure.

One (1)
08-01-0040

POWER & GROUND STUD

An electrical distribution panel shall include two (2) power studs. The studs shall be a minimum of 1/4" and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) 1/4" ground stud.

Four (4)
08-00-072D

GROUND LIGHTS

Each door shall include a Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the cab step below each door.

Each light shall include a polycarbonate lens, a housing which is vibration welded and an LED head that shall be shock mounted for extended life.

Four (4)
08-01-0751

GROUND LIGHT ACTIVATION

The ground lights shall activate when the park brake is engaged.

Four (4)
08-00-0735

CAB STEP LIGHTING

One (1) LED light shall be mounted to the riser of the middle cab step, a total of eight (8) step lights for the cab, in accordance with NFPA.

Each light shall include a polycarbonate lens and shall be contained in a housing which is vibration welded with a LED head which shall be shock mounted. Each step light shall not be any larger than 3" in diameter.

Four (4)
08-01-0753

STEP LIGHT ACTIVATION

The step lighting shall be activated by opening any of the cab doors on the respective side.

One (1)
08-00-0783

ENGINE COMPARTMENT LIGHTING

Two (2) LED lights shall be mounted to the engine compartment in such a fashion as to provide as much light as possible to the engine compartment area. The engine compartment lighting shall activate with the tilting of the cab.

One (1)
08-00-0796

STANDARD DOME LIGHT ACTIVATION

White dome light will turn on with open door, white and color dome lights can be manually turned on at the light head at any time or through the multiplex system, if equipped. Same activations shall be used for any added auxiliary dome lights.

One (1)
08-00-0791

INTERIOR OVERHEAD CAB LED LIGHTING

Each cab door shall include a dual red and white LED lamp. There shall be one (1) light centered over each of the driver and officer's seats, and one centered over each crew door.

The clear lamp shall illuminate with the opening of each respective door with both the red and clear portions of the lamp activated by individual lighted switches on each lamp.

One (1)
08-00-4060

DOOR OPEN LIGHT

One (1) red flashing, warning light shall be provided and installed in the driver's compartment to indicate an open passenger or apparatus compartment door. The warning light shall also be attached to folding equipment racks and light towers as specified. The light shall be a flashing Whelen OS red LED light and shall be properly marked and identified.

NFPA requires the red light. NFPA 1901.13.11.1

One (1)
50-41-7100

AIR HORNS

Two (2) Hadley brand E-Tone air horns shall be provided. The air horns shall be 6" in diameter and 24" long. Each horn shall feature flared ends offering a pleasing appearance.

One (1)
50-41-8140

AIR HORN LOCATION

The air horns shall be located on the front bumper. One (1) shall be mounted outboard on the driver side and one (1) outboard on the officer side, so as not to interfere with any other components on the bumper.

One (1)
50-43-2000

ELECTRIC TRAFFIC HORN AND AIR HORN SELECTOR SWITCH

A selector switch shall be provided on the cab's dash that will allow the chassis steering wheel horn button to activate either the electric traffic horn or air horn system.

One (1)
50-43-2300

AIR HORN SWITCH

A switch shall be installed to activate the air horn system on the officer's side of the cab dash.

One (1)
51-00-1700

12 VOLT POWER SOURCE

One (1) 12 volt power and ground connection rated at 30 amps shall be provided on the apparatus for the installation of a mobile two-way radio.

One (1)
51-00-4000

The power source shall be run through the chassis master battery switch and shall be deactivated when the master switch is in the "OFF" position.

One (1)
56-01-1380

ELECTRONIC SIREN

A Federal Signal PA300 siren, model PA300-100, full function and programmable 100 watt electronic siren shall be mounted in the cab. The siren shall have the following features: seven position rotary selector switch, digital Grover air horn, wail, yelp, priority, and Hi-Lo tones, radio rebroadcast, P.A. with a hard wired microphone and P.A. volume control. The system includes two (2) programmable Convergence Network serial ports for network devices and two programmable auxiliary backlit buttons (by default set to air horn and manual siren). The siren is fully programmable through the Convergence Network software. Hands free operation shall allow the operator to turn the siren on and off from the horn ring through a horn/siren selector switch. The siren shall be capable of driving (1) 100-watt speaker. The new PA300-100 comes with a five (5) year warranty.

One (1)
56-02-1600

SPEAKER

One (1) Federal Signal DynaMax 100-watt speaker, model #ES100C, shall be installed. The speaker shall feature a Neodymium driver and a high strength composite housing that is chemical resistant and maintains rigidity at high temperatures.

One (1)
56-02-1650

SPEAKER

One (1) stainless steel grille shall be installed on the speaker.

One (1)
56-03-1100

SPEAKER LOCATION

The siren speaker shall be installed in the center of the apparatus bumper.

One (1)
57-02-4600

LIGHTBAR

Two (2) Whelen Ultra Freedom IV 21.5" light bars shall be included with the apparatus cab. The light bars shall be a model F4NMINI and shall be mounted on the roof of the cab, towards the front, above the windshield.

Each light bar shall feature:

- Two (2) red Linear Super LED corner modules
- One (1) white 400 series Linear LED light front center
- One (1) red 400 series linear LED endcap light
- Clear hard coated lenses to provide extended life/luster protection against UV & chemical stresses
- Designed in accordance with NFPA Zone A requirements

One (1)
57-10-0105

LIGHTBAR ACTIVATION

The front upper light bar shall be activated through the LCS Display "MASTER WARNING" button and can be individually disabled with a separate button located on the LCS display. These controls will be available at all LCS displays installed on the vehicle. White lights in the light bar will be automatically disabled with application of the park brake.

One (1)
58-03-6300

UPPER WING FRONT WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, one each side one the front of the chassis cab upper wing area. The dimensions of the lights shall be 4-5/16" x 6-3/4".

One (1)
57-20-1252

The driver side warning light shall be a Whelen Model M6DJ red/blue Super-LED with clear lens.

--103DS

One (1)
57-20-1253

The officer side warning light shall be a Whelen Model M6DJ red/blueSuper-LED with clear lens.

--103OS

Two (2)
58-01-2140

Each light shall be mounted with a Whelen Model M6FC chrome flange.

One (1)
58-03-7300

INBOARD WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, one each side one the front of the chassis cab, in the inboard warning light position. The dimensions of the lights shall be 4-5/16" x 6-3/4".

One (1)
57-20-1252

The driver side warning light shall be a Whelen Model M6DJ red/blue Super-LED with clear lens.

--107DS

One (1)
57-20-1253

The officer side warning light shall be a Whelen Model M6DJ red/blueSuper-LED with clear lens.

--107OS

Two (2)
58-01-2140

Each light shall be mounted with a Whelen Model M6FC chrome flange.

One (1)
58-09-2000

INTERSECTION WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed one each side of the bumper. The dimensions of the lights shall be 4-5/16" x 6-3/4".

One (1)
57-20-1252

The driver side warning light shall be a Whelen Model M6DJ red/blue Super-LED with clear lens.

--BUMPER TAIL

One (1)
57-20-1253

The officer side warning light shall be a Whelen Model M6DJ red/blueSuper-LED with clear lens.

--BUMPER TAIL

Two (2)
58-01-2140

Each light shall be mounted with a Whelen Model M6FC chrome flange.

One (1)

08-01-2010

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed under the rear of the vehicle with an output level of 107 db. The alarm shall be wired to the back-up light circuit and will automatically activate when the transmission is placed in reverse.

One (1)
08-02-0770

HAAS ALERT

R2V (Responder-to-Vehicle) with HAAS ALERT R2R (Responder-to-Responder) Capability HAAS Alert Model Number shall be provided. The device shall: be constructed of high strength, impact resistant, RoHS compliant ASA Plastic; have IP65 ingress protection; include a cellular modem that connects to commercially available cellular networks to transmit and receive data to/from the HAAS Alert Safety Cloud™ and include a cellular network data plan that shall; send vehicle GPS location, speed, course, acceleration, and emergency lights status (e.g., “on” or “off”) to the HAAS Alert Safety Cloud every two (2) seconds while the vehicle is moving with e-master activated; send changes in the emergency lights status to the HAAS Alert Safety Cloud; be connected to the E-Master or emergency lights master via a minimum of 22-gauge wire; be connected to the vehicle’s main battery via a minimum of 20-gauge wire so that it receives constant power; be connected to the vehicle’s ground via a minimum of 20-gauge wire; have a parasitic shut off that turns off the device when the vehicle’s battery voltage falls below 12V; be mounted inside the cab on the dashboard, within 10 feet of the officer’s seat and with a clear view of the sky. The device shall be up-gradable to other communication technologies such as, at minimum; 5G, 5.9 band, and FirstNet.

The device shall utilize the HAAS Alert Safety Cloud to send digital R2V (Responder-to-Vehicle) alerts to nearby civilian drivers via in-dash infotainment and IVI (In-vehicle Infotainment) units, Waze and other popular consumer navigation applications when the vehicle is en-route with emergency lights engaged; utilize the HAAS Alert Safety Cloud to send digital R2V alerts to nearby civilian drivers via in-dash infotainment and IVI (In-vehicle Infotainment) units, Waze and other popular consumer navigation applications when the vehicle is on-scene with emergency lights engaged; has the ability to utilize the HAAS Alert Safety Cloud to receive digital R2R (Responder-to-Responder) alerts when the vehicle is en-route with emergency lights engaged and other responding emergency vehicles are in close proximity; have a port that connects to a compatible peripheral device to communicate R2R alerts to vehicle passengers. The device shall be able to communicate across all manufacturer brands.

The device shall have a companion, password-protected, web-based dashboard that provides authorized users with a map-based visualization of real-time vehicle location, emergency response status (i.e., “responding”, “on-scene”, “ready”, “offline”) with the ability for expanded attribution, vehicle speed and course, vehicle time-to-scene information, and vehicle time-on-scene information.

Dimensions – Length, Width, Height (Inches): 5.4” x 2.7” x 1.3"
Input Voltage - Power: 12.5V to 15V
Input Voltage - Lights Indicator: 12V to 15V

Amperage: 120 mA peak draw
Operating Temperature Range: -40°C to 85°C
Weight (Ounces): 7 oz.

One (1)
08-02-0775

The HAAS system shall be provided with a 5-year subscription.

One (1)
08-05-1100

AERIAL INTERFACE

One (1)
08-06-0023

Selected camera system shall be displayed on the driver's LCS display. The same camera signals shall also be provided on the officer's LCS display, if equipped.

One (1)
08-06-0191

REAR FACING CAMERA

A rear facing black box style rearview camera shall be installed on the rear of the vehicle. The camera shall activate when the vehicle transmission is shifted into reverse with the image viewed on the driver's LCS display.

The rear facing camera shall feature automatic heating when the temperature is below 10 degrees Fahrenheit, and 150-degree lens. No Exception.

One (1)
08-06-0161

No officer or driver side cameras will be provided.

One (1)
08-08-10AP

SUPPLEMENTAL AIR BRAKE COMPRESSOR

One (1) Kussmaul model number 091-9B, 120 volt air compressor shall be installed to maintain the pressure in the braking system connected to shore power. A pressure switch shall sense air pressure loss and engage the compressor, which shall run until adequate pressure is achieved. The unit shall be wired to the 120-volt shore power receptacle specified.

One (1)
08-08-0022

AUXILIARY AIR COMPRESSOR LOCATION

The auxiliary air compressor shall be located behind the officer's seat.

One (1)
08-08-KMCS

BATTERY CHARGER

A Kussmaul Chief series model #091-266-12-60, high output battery charger shall be wired to the 12-volt battery system. The charger unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

One (1)
08-08-0001

CHARGER LOCATION

The battery charger shall be located behind the driver's seat.

One (1)
08-08-2224

SHORELINE INLET

There shall be a Kussmaul 20-amp super auto eject with a yellow cover and integrated digital display supplied.

One (1)
08-08-06WW

SHORELINE LOCATION

The shoreline shall be located on the driver’s side of the cab behind the front door and above the wheel well.

--205 DS