CONTRACT PRICING WORKSHEET
for motor vehicles only

Contract No.: FS12-11 **Date:** 11/28/2012

This Worksheet is prepared by Contractor and given to End User. If a PO is issued, both documents MUST be faxed to H-GAC @ 713-993-4548. Therefore please type or print legibly.

Agency:	Fort Bend County office of Emergency Services	**Contractor:**	Siddons-Martin Emergency Group
Contact:		**Prepared:**	John Kovach
Phone:		**Phone:**	602-790-7294
Fax:		**Fax:**	
Email:		**Email:**	johnk@martinapparatus.com

Prod. Code:	**WD03**	**Description:**	**Peterbuilt 337, 23' Rescue, Aluminum**

A. Product Item Base Unit Price Per Contractor's H-GAC Contract: $ 257,589.34

B. Published Options - Itemize below - Attach additional sheet(s) if necessary - Include Option Code in description if applicable.

Description	Cost	Description	Cost
		Subtotal From Additional Sheet(s):	$ 218,026.40
		Subtotal B:	$ 218,026.40

Total Published Options $ 475,615.74

C. Unpublished Options - Itemize below / attach additional sheet(s) if necessary.

Description	Cost	Description	Cost
		Subtotal From Additional Sheet(s):	$ 76,827.26
		Subtotal C:	$ 76,827.26

Check: Total cost of Unpublished Options (C) cannot exceed 25% of the total of the Base Unit Price plus Published Options (A+B). 16%

D. Other Cost Items Not Itemized Above (e.g. Installation, Freight, Delivery, Etc.)

Description	Cost	Description	Cost
		Subtotal D:	$ -

E. Total Cost Before Any Applicable Trade-In / Other Allowances / Discounts (A+B+C+D) $ 552,443.00

Quantity Ordered:	1	**X Subtotal of A + B + C + D:**	552442.9982	=	**Subtotal E:** $ 552,443.00

F. H-GAC Fee Calculation (From Current Fee Tables) **Subtotal F:** $ 2,000.00

Description	Cost	Description	Cost	
Chassis Pre-Payment Discount				
100% Pre-Payment Discount				
Subtotal of column	$ -	Subtotal of Column	$ -	**Subtotal G:** $ -

Delivery Date: **H. Total Purchase Price (E+F+G):** $ 554,443.00

3500 Shelby Lane
Denton, Texas 76207
GDN P115891
TXDOT Franchise No. A115890
EIN: 27-4333590

October 25, 2012

Fort Bend County Office of Emergency Services
Click here to enter text. Click here to enter text. Click here to enter text.
301 Jackson Street
Richmond, Texas 77469

RE: Proposal for Breathing Air Support Vehicle; EP-489257-447

Dear Click here to enter text. Click here to enter text.

Siddons-Martin Emergency Group the licensed and authorized dealer for Pierce Manufacturing Inc. in the State of Texas is pleased to provide the following proposal for Breathing Air Support Vehicle. This proposal is based on the accompanying proposal specifications, which are tailored to meet your needs. The proposal pricing is based on current HGAC (Houston Galveston Area Council) FS12-11 contract pricing and includes the fees associated with an HGAC purchase.

Breathing Air Support Vehicle EP-489257-447

Sales Price	**$440,489.00**
Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.
Loose Equipment	**$113,954.00**
Final Sales Price After Trade-In and Discounts	**$554,443.00**

To take advantage of prepayment discounts, payment must be made by Prepay Date

The proposal pricing includes the delivery cost from Plant. Travel expenses for Six (6) of your personnel to travel to our factory for Trips are included.

Delivery time for the proposed unit will be within **7 to 8 months** from the date of order which will be the date a Purchase Order is received by Siddons-Martin Emergency Group.

This proposal is valid for **60 days** from the above date.

Tax is excluded from this proposal. In the event the purchasing organization is not exempt from Sales Taxes or any other applicable vtaxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due.

Balance of sales price is due upon acceptance of the apparatus at the factory. Payment must be remitted to:

Payment Mailing Address
Siddons-Martin Emergency Group
P.O. Box 975262
Dallas, TX 75397-5262

Payment Wiring Information
Available Upon Request

Fed Tax ID 27-4333590

Any changes to the original specification will be invoiced or credited as a separate transaction from the original proposal.

A late fee of .033% of the sale price will be charged per day for overdue payments beginning ten (10) days after the payment is due for the first 30 days. The late fee increases to.044% per day until the payment is received. In the event of a Prepayment received after the due date above, the discount will be reduced by same percentages above increasing the cost of the apparatus.

In the event this proposal is accepted and a purchase order is issued then cancelled or terminated by Fort Bend County Office of Emergency Services before completion, Siddons-Martin Emergency may charge a cancellation fee. The following charge schedule based on costs incurred may be applied:

(a) 10% of the Purchase Price after order is accepted and entered by Pierce;

(b) 20% of the Purchase Price after completion of the approval drawings;

(c) 30% of the Purchase Price upon any material requisition.

The cancellation fee may increase accordingly as costs are incurred as the order progresses through engineering and into manufacturing. Siddons-Martin Emergency endeavors to mitigate any such costs through the sale of such product to another purchaser; however, the customer shall remain liable for the difference between the purchase price and, if applicable, the sale price obtained by Siddons-Martin upon sale of the product to another purchaser, plus any costs incurred by Siddons- Martin to conduct such sale.

In an effort to ensure the above stated terms and conditions are understood and adhered to, Siddons-Martin requires an authorized individual from the purchasing organization to sign and date this proposal and include it with any purchase order.

Upon signing of this proposal, the terms and conditions stated herein will be considered binding and accepted by Fort Bend County Office of Emergency Services. The terms and acceptance of this proposal will be governed by the laws of the state of Texas. Venue of any claim regarding this proposal will lie in the county Fort Bend County Office of Emergency Services is located. No additional terms or conditions will be binding upon Siddons-Martin Emergency Group unless agreed to in writing and signed by a duly authorized officer of Siddons-Martin Emergency Group.

Sincerely,

YOUR NAME

YOUR NAME
Sales Representative
000-000-0000
saleman@siddons-martin.com

I, _____, the authorized representative of Fort Bend County Office of Emergency Services, agree to purchase the Breathing Air Support Vehicle and agree to the terms of this proposal.

_____ _____

Signature *Date*

Your apparatus will be manufactured in Appleton, Wisconsin.

We are pleased to submit a proposal to you for a **Pierce® ENCORE™Rescue** per your request for quotation. The following paragraphs will describe in detail the apparatus proposed. Loose equipment not specifically requested will not be provided.

PIERCE MANUFACTURING was incorporated in 1917. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 60 years of experience in the fire apparatus market. Our plant is located in Appleton, Wisconsin with over 757,000 total square feet of floor space situated on approximately 97 acres of land. A multi-million dollar inventory of parts is available to keep your unit in service long after it has left the factory.

QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning. We currently have a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards that we demand. That is just part of our overall "Quality at the Source" program at Pierce. Another part of this program is employing experts in their fields, like a Certified American Welding Society Inspector to monitor our weld quality.

DELIVERY

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty.

INFORMATION

The manufacturer will supply at time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate will be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission and drive axle.

SAFETY VIDEO

At the time of delivery Pierce will provide one (1) 39-minute, professionally-produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, and safety during maintenance.

PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus will meet NFPA 1901 acceleration requirements and NFPA 1901 braking requirements. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle and not less than 50 percent nor more than 75 percent on the rear axle.

COMMERCIAL GENERAL LIABILITY INSURANCE
Certification of insurance coverage will be enclosed.

ISO COMPLIANCE
Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance Number 32454 is included with this proposal.

NFPA CERTIFICATION
The apparatus will be third-party, independent bumper-to-bumper audit certified through Underwriters Laboratory (UL) to the current edition of NFPA 1901 standards. The certification includes: all design, production, operational and performance testing of the apparatus.

NFPA 2009 STANDARDS
This apparatus specification includes a commercial chassis that has not been certified to meet the requirements of NFPA 1901 by the chassis manufacturer. Although this chassis may comply with certain aspects of the standard, Pierce has not received certification from this chassis manufacturer that all criteria have been met. The body as built by the manufacturer must comply with the NFPA standards effective January of 2009.

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

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

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

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

NFPA COMPLIANCY
Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

VEHICLE INSPECTION PROGRAM CERTIFICATION
To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

GENERATOR TEST

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection*.

AFTERMARKET SUPPORT WEBSITE

Pierceparts.com will provide Pierce authorized dealer access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.

Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.

The website will consist of the following screens at the dealer level:

My Fleet Screen

The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.

Parts Screens

The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.

Warranty Screen

The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.

My Reports Screens

The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.

Technical Support Screens

The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.

Training

The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.

About Pierce

Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.

BID BOND

A bid bond as security for the bid in the form of a 10% bid bond will be provided with the proposal. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language which assures that the bidder/principal will give a bond or bonds, as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

PERFORMANCE BOND, NOT REQUESTED

A performance bond will not be included. If requested at a later date, one will be provided to you for an additional cost and the following will apply:

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of

XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

APPROVAL DRAWING

A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the body as it interfaces with the commercial chassis, will be provided.

CHASSIS

The chassis will be a Peterbilt, Model 337, supplied with the following equipment:

WHEELBASE

The wheelbase of the vehicle will be 251".

GVW RATING

The gross vehicle weight rating will be 40,600.

FRAME

The frame rails will be formed from 120,000 psi yield, heat treated alloy steel.

FRAME LINER

A 3/4 length steel inner frame liner will be provided.

FRONT AXLE

Front axle will be an "I" beam type, made of forged steel. It will be a Dana Spicer™, Model E-1462I, with a ground rating capacity of 14,600 lb.

FRONT SUSPENSION

- Taper Leaf
- Capacity at Ground: 14,600 lb

Shock absorbers will be provided on the front axle.

TIRES, FRONT
Front tires will be Bridgestone 12R22.50, radial tires with a tread pattern suitable for the steering axle position. The capacity of the tires will meet or exceed the rating of the axle and/or suspension.

WHEELS, FRONT
Wheels for the front axle will be 22.50" x 8.25" polished aluminum disc, ten (10)-hole pattern.

REAR AXLE
The single reduction rear axle will be a Dana Spicer S26-190, with a ground rating capacity of 26,000 pounds.

The brake chambers will be forward mounted and the brakes will be 16.50" x 7.00", S-Cam type.

PARKING BRAKE
The parking brake will be spring set and located on the rear axle service brake.

REAR AXLE RATIO
A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 MPH.

REAR SUSPENSION
The rear suspension will be Reyco multileaf with a capacity at ground of 26,000 lb. Auxiliaries will be included and the deflection will be variable.

DUST SHIELDS
The front and rear brakes will be provided with dust shields.

TIRES, REAR
Rear tires will be Bridgestone, 12R22.50 radial tires with a traction tread pattern suitable for the drive axle position. The tires will meet or exceed the weight rating of the axle and/or suspension.

WHEELS, REAR
The rear wheels will be 22.50" x 8.25" polished aluminum disc type with a ten (10)-hole pattern.

TIRE PRESSURE MANAGEMENT
There will be a VECSAFE LED tire alert pressure management system provided that will monitor each tire's pressure. A chrome plated brass sensor will be provided on the valve stem of each tire for a total of six (6) tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops eight (8) psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start blinking.

HUB COVERS (front)

Stainless steel hub covers will be provided on the front axle.

HUB COVERS (rear)
A pair of stainless steel high hat hub covers will be provided on rear axle hubs.

COVERS, LUG NUT, CHROME
Chrome lug nut covers will be supplied on front and rear wheels.

MUD FLAPS
Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

WHEEL CHOCKS
There will be two (2) pairs of folding Ziamatic SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.

WHEEL CHOCK BRACKETS
There will be two (2) pairs of Ziamatic SQCH-44-H horizontal mounting wheel chock brackets provided for the Ziamatic SAC-44-E folding wheel chocks. The brackets will be mounted ONE PAIR IN FRONT OF REAR WHEELS AND ONE PAIR BEHIND THE REAR WHEELS BOTH ON DRIVER SIDE.

ANTI-LOCK BRAKE SYSTEM
The vehicle will be equipped with an anti-lock braking system. The ABS will provide anti-lock braking control on both the front and rear wheels. It is to be a digitally controlled system that utilizes microprocessor technology to control the anti-lock braking system. Each wheel is to be monitored by the system. When any particular wheel begins to lockup, a signal is to be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

FRONT BRAKES
The front brakes will be S-Cam, 16.50" x 5.00". The front brakes will be provided with Eaton™ automatic slack adjusters.

AIR COMPRESSOR, BRAKE SYSTEM
The air compressor will be a Cummins with 18.7 cubic feet per minute output.

- Bendix AD-IS air dryer with heater

AIR INLET
A single air inlet with male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female coupling will also be provided with the loose equipment.

ENGINE

- Model: Paccar PX-8

- Number of Cylinders: Six (6)

- Bore and Stroke: 4.49" x 5.31"
- Displacement: 506 cubic inches
- Compression Ratio: 16.60:1
- Rated Brake Horsepower: 350 at 2000 rpm
- Peak Torque: 1000 at 1400 rpm
- Governed rpm: 2200
- Turbocharger
- Charge Air Cooled
- Fuel System: Hydraulically Actuated, Electronically Controlled Unit Injectors (HEUI)

ENGINE ACCESSORIES

- Air Cleaner: Dry type, with restriction indicator in cab
- Fuel Filter: With check valve
- Governor: Limiting speed type
- Lube Oil Cooler
- Lube Oil Filter: Full flow
- Starting Motor: 12-volt
- Oil Fill and Level Gauge

ENGINE WARRANTY

The engine will come with a **five (5) year** or **100,000 mile** warranty provided by the engine manufacturer.

RADIATOR

- Pressurized System, Tube and Fin
- Deaeration Tank and Sight Glass
- Anti-Freeze Protection -30 Degrees Fahrenheit

HIGH IDLE

A high idle switch will be provided on the instrument panel inside the cab. Activating the switch will cause the vehicle to automatically maintain a preset engine rpm.

The high idle switch will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided adjacent to the switch. The light will be labeled "OK To Engage High Idle."

TURBO EXHAUST BRAKE

A variable geometry turbo exhaust brake will be installed with the control located on the instrument panel within easy reach of the driver.

AIR INTAKE, w/EMBER SEPARATOR

The air inlet will be equipped with a stainless steel mesh to separate water and burning embers from the air intake system such that particulate matter larger than 0.039" (1.0 mm) in diameter cannot reach the air filter element.

This will comply with NFPA 1901 and 1906 standards.

EXHAUST SYSTEM

The exhaust system will consist of a single vertical stack with a diesel particulate filter (DPF) and an SCR device to meet current EPA standards. The DPF and SCR will be mounted horizontally outside of the frame rails in the passenger side front step area. The stack will be located at the right rear side of the cab. A perforated stainless steel heat shield will cover the stack along the cab door frame opening.

A vertical handrail will be mounted to the heat shield.

COOLANT LINES

Silicone hoses will be used for the radiator and cab heater hoses installed by the chassis manufacturer.

Hose clamps will be constant torque type to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 50 gallon aluminum fuel tank will be provided and mounted at the left-hand cab step.

DIESEL EXHAUST FLUID TANK

A 9.0 gallon diesel exhaust fluid (DEF) tank will be provided and mounted on the driver's side, below the cab.

The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

LABEL, FUEL DOOR

A label will be provided, NEXT TO FILL, to read "Ultra Low Sulphur Diesel Fuel Only".

TRANSMISSION

An Allison, model 3000 EVS, electronic torque converting automatic transmission will be provided.

Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 4 o'clock).

A transmission temperature gauge or warning light will be installed on cab instrument panel.

TRANSMISSION SHIFT CONTROL

A push button shift module will be mounted to right of driver. Shift position indicator will be indirectly lit for after dark operation.

The transmission will be a five (5)-speed. The transmission ratios will be 1st - 3.49 to 1.00, 2nd - 1.86 to 1.00, 3rd - 1.41 to 1.00, 4th - 1.00 to 1.00, 5th - 0.75 to 1.00, R - 5.03 to 1.00.

TRANSMISSION COOLER
An external transmission oil cooler will be provided.

DRIVELINE
Drivelines will have a heavy duty metal tube that is properly sized for the intended application. The shafts will have a splined slip joint.

STEERING
Steering will consist of a hydraulically driven Model TRW TAS-85, steering system.

The steering column will tilt and telescope.

WINCH
A Warn, Model XD9000i multi-mount, 9,000 lb portable 12V electric winch will be provided.

The winch will mount to the vehicle receiver hitch and be held in place with a locking hardened pin. A heavy gauge wire and electrical plug will be provided for quick connection to the vehicle electrical system.

The winch will be provided with 125.00' of .313" galvanized cable with a replaceable clevis hook.

A minimum of a 30.00' remote control will be provided.

A label will be placed on or near the receiver that states the maximum winch load rating and the maximum rope load rating that the receiver can support.

BUMPER
A one (1) piece, 10.00" high, stainless steel bumper will be attached to the front of the frame.

A 9.00" channel will be mounted directly behind the bumper for additional strength.

The bumper will be extended 26.00" from the front face of the cab.

GRAVEL PAN
A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

TOW HOOKS
Two (2) chromed steel tow hooks will be installed under the bumper and attached to the front frame members. The tow hooks will be designed and positioned to allow up to a 6,000 pound straight horizontal pull in line with the centerline of the vehicle. The tow hooks will not be used for lifting of the apparatus.

GRAVEL PAN

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

PORTABLE WINCH STORAGE WITH HINGED CENTER SECTION

A tray for a portable winch, constructed of aluminum, will be placed in the center of the bumper extension.

The tray will be enclosed to protect the winch from weather. A raised aluminum treadplate cover will be made as high as necessary to enclose the winch. The lower section of winch compartment will be enclosed, to prevent road salt, snow, and ice from entering the winch compartment.

Drain holes will be provided.

The center section of the bumper will be hinged at the bottom to allow access to the winch. Two (2) pawl latches will hold the center section in the closed position.

A portable winch receiver will be installed in the back of the tray. The winch receiver will be constructed of heavy steel tubing and reinforced to the bumper extension framework for the receiving portion. The receiver will have a 2.00" inside dimension, with a maximum weight rating of 9,000 pounds.

The assembly will be designed to allow the winch to be stored and used from the tray.

CAB

Type: Conventional (engine forward), Extended Day Cab

Construction: Aluminum

Accessories:

- Tinted Glass in all Windows
- Fully Trimmed Vinyl Upholstery
- Black Rubber Floormats
- Dual Sunvisors
- Cab Entrance Handrails
- Electric Windshield Washer
- Two (2)-speed Plus Intermittent, Electric Windshield Wipers
- Dome Light with Door Courtesy Lights
- Fresh Air Heater and Integral Defroster
- Grey/Black Vinyl Upholstery

CAB GRILLE

The cab grille will be a highly polished perforated stainless steel design, and will include chrome headlight bezels. The grille will tilt with the hood.

MIRRORS
There will be 16.00" x 7.00" mirrors with stainless steel finish provided. The driver side and passenger side mirrors will be heated and remote controlled by the driver.

On each side will be 8.00" heated convex mirrors.

VISIBILITY WINDOW
A visibility window, peeper, will be provided in the passenger side cab door.

CAB ACCESS STEPS
The cab access steps on the driver side and passenger side front will be provided by the chassis manufacturer. These steps will be modified by the apparatus manufacturer if required to meet NFPA step requirements.

STEP LIGHTS
There will be four (4) white LED step lights provided. There will be one (1) light installed at each cab door, one (1) light per doorstep.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The lights will be activated when the adjacent door is opened.

AIR CONDITIONING
Air conditioning with integral heater and defroster will be provided.

ENGINE COMPARTMENT LIGHTS
Two (2) engine compartment lights will be installed under the engine hood, of which the switches are an integral part.

SEATING CAPACITY
The seating capacity in the cab will be two (2).

SEATING
Seating inside the cab will consist of an air-suspension driver seat and an air-suspension officer seat.

SEAT BELT WEB LENGTH
The chassis seat belt web length as supplied by the commercial chassis manufacturer will be compliant to NFPA 14.1.3.2 and 14.1.3.3.

SEAT BELTS
All seating positions in the cab and crew cab will have red seat belts.

SEAT BELT MONITORING SYSTEM
NFPA 1901, 2009 edition, section 14.1.3.10 requires a seat belt warning system be provided. The seat belt warning device is intended to assist the driver or officer in

determining whether all occupants are seated and belted before the vehicle is driven. Without this device, the driver must manually determine that all occupants are seated and belted before the apparatus is placed in motion.

The seat belt warning system is not required from the commercial chassis manufacturer. Per Fire Department specification of a commercial chassis, there will be no seat belt warning system on the apparatus. The purchasing authority is consciously choosing to accept an apparatus without a tool that the NFPA Technical Committee on Fire Department Apparatus believes all fire departments should use to promote and enforce seat belt compliance. This apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.

HELMET HOLDER

There will be two (2) Zico UHH-1 helmet holder bracket(s) provided in the cab. The brackets will provide quick access and secure storage of the helmet(s). The bracket location(s) will be determined at time of final inspection at Pierce mfg.

HAND HELD LIGHT

There will be two (2) Streamlight LiteBox lights with an orange thermoplastic body provided. The location will be AT DRAWING.

CAB INSTRUMENTS

- Engine Temperature Gauge and Warning Buzzer
- Engine Oil Pressure Gauge and Warning Buzzer
- Speedometer with Odometer
- Engine Tachometer
- Engine Hourmeter
- Fuel Level Gauge
- Voltmeter: Low voltage red warning light and audible alarm
- Air Brake Pressure Gauge
- Air Restriction Indicator
- Circuit Breakers: For overload protection of electric circuits
- Ignition Switch: Keyless type

EMERGENCY SWITCH PANEL

An emergency switch panel will be provided in the cab. The switch panel will be located overhead and on the cab instrument panel.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light (located in the driving compartment) will be illuminated automatically per the current edition of NFPA. The light will be labeled "Do Not Move Apparatus If Light Is On".

OPEN DOOR INDICATOR LIGHT

A red "open door" indicator light will be provided inside the cab, in clear view of the driver, to warn of an open compartment door.

WIPER CONTROL
Wiper control will include an intermittent feature and windshield washer controls.

SPARE CIRCUIT
There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

The positive wire will be connected directly to the battery power.

The negative wire will be connected to ground.

Wires will be protected to 20 amps at 12 volts DC.

Power and ground will terminate DRAWING APPROVAL.

Termination will be with heat shrinkable butt splicing.

Wires will be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT
There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

The positive wire will be connected directly to the battery power.

The negative wire will be connected to ground.

Wires will be protected to 20 amps at 12 volts DC.

Power and ground will terminate DRAWING APPROVAL.

Termination will be with heat shrinkable butt splicing.

Wires will be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT
There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

The positive wire will be connected directly to the battery power.

The negative wire will be connected to ground.

Wires will be protected to 15 amps at 12 volts DC.

Power and ground will terminate DRAWING APPROVAL.

Termination will be with heat shrinkable butt splicing.

Wires will be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

RADIO

A Panasonic digital electronic tuning AM/FM stereo with weather band and two (2) dual cone speakers.

VEHICLE DATA RECORDER

A vehicle data recorder (VDR) will be provided. The VDR will be capable of reading and storing vehicle information. The VDR will be capable of operating in a voltage range from 8VDC to 16VDC. The VDR will not interfere with, suspend, or delay any communications that may exist on the CAN data link during the power up, initialization, runtime, or power down sequence. The VDR will continue operation upon termination of power or at voltages below 8VDC for a minimum of 10ms.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A CD provided with the apparatus will include the programming to download the information from the VDR. A USB cable can be used to connect the VDR to a laptop to retrieve required information.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

Vehicle Speed - MPH

Acceleration - MPH/sec

Deceleration - MPH/sec

Engine Speed - RPM

Engine Throttle Position - % of Full Throttle

ABS Event - On/Off

Seat Occupied Status - Yes/No by Position (1-6 Seating Capacity)

Seat Belt Buckled Status - Yes/No by Position (1-6 Seating Capacity)

Master Optical Warning Device Switch - On/Off

Time - 24 Hour Time

Date - Year/Month/Day

TWO WAY RADIO INSTALLATION

There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed c. No antenna mount or whip will be included in this option. Specific radio shipping requirements will be followed.

RADIO ANTENNA MOUNT

There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the console. A weatherproof cap will be installed on the mount.

An eight (8) inch minimum, metallic ground plane will be installed inside the roof beneath each antenna mount.

VIDEO SYSTEM WITH 7" LCD DISPLAY

A Zone Defense 323-1-4 video system with multiple cameras and 7" color LCD display monitor with swivel mount shall be provided.

Cameras shall be located at the rear of the vehicle, as close to center as possible, activated with the reverse signal and one (1) on the right side of the cab, activated with the right turn signal .

Images shall be displayed in the cab on a 7" color LCD flat panel display with integrated camera switcher and speaker, permitting audio from the rear camera, located in view of the driver on the engine tunnel

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run in loom or conduit where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. 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:

(1) 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.

(2) 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 is defined as any location outside of the cab or body.

(3) Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

(4) Corrosion preventative compound will be applied to all terminal plugs 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).

(5) All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

(6) All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal. All emergency light switches will be mounted on a separate panel installed in the cab. A master warning light switch and individual switches will be provided to allow pre-selection of emergency lights. The light switches will be "rocker" type with an internal indicator light to show when switch is energized. All switches will be properly identified and mounted in a removable panel for ease in servicing.

Identification of the switches will be done by either printing or etching on the switch panel. The switches and identification will be illuminated.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

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.

BATTERY SYSTEM

A single starting battery system shall be provided consisting of two (2) 12 volt, 1000 CCA, maintenance-free batteries. The battery system shall have a total of 2000 CCA (cold cranking amps).

BATTERY SYSTEM MODIFICATION

Due to specific apparatus configuration requirements, the batteries will be relocated to the driver side front compartment by the Pierce. An enclosure with an access panel shall protect the batteries.

MASTER BATTERY SWITCH

A master battery switch, to activate the battery system, will be provided inside the cab within easy reach of the driver.

The master battery disconnect switch will be wired between the starter solenoid and the remainder of the electrical loads on the apparatus.

A green "battery on" indicator light, visible from the driver's position, will be provided.

BATTERY CHARGER/ AIR COMPRESSOR

A Kussmaul Pump Plus 1000, model 091-9-1000 single 18 amp output battery charger/air compressor system with internal battery saver will be provided. A display bar graph indicating the state of charge will be included.

The battery saver circuit will be capable of supplying up to three (3) amps for external loads such as hand light or auxiliary radio batteries.

The 12-volt air compressor will be installed to maintain the air system pressure when the vehicle is not in use.

The battery charger will be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

Battery charger/compressor will be located in the front left body compartment.

The battery charger indicator will be located on the driver's seat riser.

KUSSMAUL AUTO EJECT FOR SHORELINE

one (1) shoreline receptacle will be provided to operate the dedicated 120-volt circuits on the truck without the use of the generator.

The shoreline receptacle (s) will be provided with a NEMA 5-20, 120 volt, 20 amp, straight blade Kussmaul Super auto eject plug with a red weatherproof cover. The cover is spring loaded to close, preventing water from entering when the shoreline is not connected.

The unit is completely sealed to prevent road dirt contamination.

A solenoid wired to the vehicle's starter is energized when the engine is started. This instantaneously drives the plug from the receptacle.

An internal switch arrangement will be provided to disconnect the load prior to ejection to eliminate arcing of the connector contacts.

The shoreline will be connected to Battery.

A mating connector body will also be supplied with the loose equipment.

The shoreline receptacle will be located in the driver side lower step well of cab.

SWITCH, AUTO TRANSFER

To protect either the generator or external power source from back feed, an automatic relay system will be installed to switch the on line device between the generator and the external power source when it is connected for use.

The transfer switch will power battery.

ELECTRIC POWER FOR WINCH

Electric power provisions will be furnished for the portable winch from the chassis battery system.

The receiver plug will be located all 4 sides.

A total quantity of four (4) receptacles will be provided.

ALTERNATOR

The alternator will be a12-volt 320 amp.

ELECTRONIC LOAD MANAGEMENT

A Kussmaul Load Manager 2 will be provided on the apparatus. The device is an electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.

The ELM will monitor the vehicle's voltage while at the scene (parking brake applied). It will sequentially shut down individual electrical loads when the system voltage drops below a preset value. Two (2) separate electrical loads will be controlled by the load manager. The ELM will sequentially re-energize electrical loads as the system voltage recovers.

EXTERIOR LIGHTING

Exterior lighting will meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at this time.

Front headlights will be halogen type and comply to all FMVSS requirements.

Five (5) LED clearance/marker lights will be installed across the leading edge of the cab.

REAR ID/MARKER DOT LIGHTING

There will be one (1) Truck-Lite Model 15050R three (3) LED light kit used as identification lights located at the rear of the apparatus per the following:

- As close as practical to the vertical Centerline.

- Centers spaced not less than six (6) inches or more than twelve (12) inches apart.

- Red in color.

- All at the same height.

There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle.

- One (1) each side of the vertical centerline.

- As near the top as practical.

- Red in color.

- To be visible from the rear.

There will be two (2) LED lights installed on the side of the apparatus as close to the rear as practical per the following:

- To indicate the overall length of the vehicle.

- One (1) each side of the vertical centerline.

- As near the top as practical.

- Red in color.

- To be visible from the side.

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

The rear stop/tail and directional LED lighting will consist of the following:

- Two (2) Whelen, Model M6BTT red LED stop/tail lights.
- Two (2) Whelen, Model M6T amber LED arrow turn lights.

Each light will be installed separately at the rear with chrome trim and colored lenses.

Four (4) red reflectors will be provided.

Two (2) Peterson, Model M-392, backup lights will be provided.

LICENSE PLATE BRACKET

There will be one (1) license plate bracket mounted on the driver's side above the warning lights.

A white LED light will illuminate the license plate. A polished stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

LIGHT, INTERMEDIATE

There will be two (2) Weldon, Model 9186-8580-29, amber, LED, turn signal, marker lights furnished, one (1) each side, in the rear fender panel.

PERIMETER SCENE LIGHTS, CAB

There will be a Truck-Lite, model 60, grommet mount weatherproof light provided for each cab door. Lighting will be designed to provide illumination on areas under the driver and officer riding area exits, which will be activated automatically when the exit doors are opened and by the same means as the body perimeter lights.

The lighting will be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.

PERIMETER SCENE LIGHTS, BODY

There will be two (2) Amdor Luma Bar, Model AY-9500-020 LED weatherproof strip lights provided on the apparatus under the rear step area. The lights will be spaced one (1) each side of apparatus.

The perimeter scene lights will be activated by a parking brake control and switch in cab.

The lighting will be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas designed

for personnel to climb onto the apparatus or descend from the apparatus to the ground level.

STEP LIGHTS

Two (2) white LED, step lights will be provided. The step lights will be provided at the rear body, one (1) each side of the rear compartment.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The step lights will be activated by the same control as the perimeter lights.

All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.

12 VOLT LIGHTING

There will be two (2) Fire Research, Model SPA260-Q15, 12 volt LED surface mounted scene light(s) with chrome trim bezel provided TWO (2) UPPER BODY, ONE FORWARD AND ONE REARWARD p/s.

The light(s) will be controlled in the following way:

a switch at the driver's side switch panel

a switch at the passenger's side switch panel

no additional switch location

no additional switch location

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be two (2) Fire Research, Model SPA260-Q15, 12 volt LED surface mounted scene light(s) with chrome trim bezel provided TWO (2) UPPER BODY ONE FORWARD AND ONE REAR d/s.

The light(s) will be controlled in the following way:

a switch at the driver's side switch panel

a switch at the passenger's side switch panel

no additional switch location

no additional switch location

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be two (2) Fire Research Evolution, Model FCA530-V15, 12 volt DC LED scene light(s) provided on push up, side mount pole(s), located REAR OF TRUCK.

The light(s) will be controlled in the following way:

a switch at the driver's side switch panel

no additional switch location

no additional switch location

no additional switch location

These light(s) may be load managed when the parking brake is applied.

These lights will be connected to the Do Not Move Truck Indicator circuit.

12 VOLT LIGHTING

A Fire Research, Model SPA851-Q15, white 12 volt LED floodlight will be provided. The light will be mounted on a special bracket on the front of the cab roof.

The light will be controlled in the following way:

[Switch, Lt Control 1 DC,1]

[Switch, Lt Control 2 DC,2]

[Switch, Lt Control 3 DC,3]

These lights may be load managed when the parking brake is applied.

RESCUE BODY CONSTRUCTION

The rescue body will consist of individual compartment modules, that are welded together to form the body. Welders that are certified to the standards of AWS will perform all welding on the modules and body assembly.

Module Fabrication

Compartment modules will be built in a fixture that will ensure correct tolerances. The design of the module will allow all welding to be performed in areas that are not visible after the body is assembled. All compartments will be supported on the top, sides and bottom. All modules will be designed to provide maximum storage space. Each module will have side walls that are not common with any other compartment. The compartment floors will be a sweep out design, with the floor higher than the compartment door frame.

Body Assembly

The modules will be coupled in a fixture, and welded together to form the body. The body will be built as a separate component prior to being mounted onto the substructure.

All primary, load bearing structures will be welded. All secondary, non load bearing body panels will be fastened to the primary structure with the use of an elastic adhesive.

Body Panel Installation

Body panels that are non load bearing will be bonded with an elastic adhesive. The use of an adhesive will reduce the possibility of corrosion, provide sound deadening and increase the torsional strength of the assembly over conventional methods of fastening. All surfaces that require bonding will be sanded or painted. A cleaner will be applied to all mating surfaces. An industrial adhesive will be applied and the panels will be installed

on to the body framework. Documented installation procedures, approved by the adhesive manufacturer, will be followed to ensure a good bond.

RESCUE BODY CONSTRUCTION and SUPPORT STRUCTURE

The rescue body will be of all aluminum construction. The body will use .12" (3 mm) and .18" (5 mm) 5052 aluminum alloy with a tensile strength of 38,000 psi and yield strength of 31,000 psi. The structural support framing used will be 1.00" (25 mm) x 2.00" (51 mm), .12" (3 mm) wall thickness aluminum alloy tubing and 2.00" (51 mm) square, .12" (3 mm) wall thickness 6061 aluminum alloy tubing. The body will be properly welded into a unitized construction. Proper reinforcing and supports will be utilized throughout all construction to ensure strength and rigidity.

Side Compartment Support

The substructure for the body will not be integral with the body but be a separate assembly.

An underslung steel angle grid will support the bottom of each lower compartment floor. The underslung support will be constructed of a minimum .50" (13 mm) x 2.50" (64 mm) x 2.50" (64 mm) steel angle vertical support. The horizontal members will be a minimum .38" (10 mm) x 2.00" (51 mm) x 3.00" (76 mm) and .38" (10 mm) x 2.50" (64 mm) x 3.50" (89 mm) steel angle. The compartment floors will be bolted to the underslung substructure. The support will transfer major stress to the chassis frame and not through the body.

The complete substructure will be washed, primed and finish painted before being bolted to the chassis frame. The substructure will be bolted to the chassis frame rails with grade eight (8) bolts.

A .75" x 3.00" rubber pad will be fastened to the substructure in all areas that contact the body. The rubber will serve as an isolator between the substructure and body. The rubber will also allow body flex without damage.

The body will be secured to the sub structure in a minimum of six (6) locations with .38" (10 mm) diameter bolts.

Rear Side Compartment Support

The chassis frame rails will be cut short behind the rear axle. An underslung steel compartment support will be assembled and bolted to the rear frame rails. The compartment support will be constructed as follows:

The lower frame member, on each side, will be a minimum of 3.00" (76 mm) x 6.00" (152 mm) x .38" (10 mm) steel tube. The length of the tube will be determined by the width of the rear compartment. The remainder of the compartment support assembly will consist of structural steel channel, tubing, and angles welded to the lower frame members.

The complete substructure will be washed, primed and finish painted before being attached to the chassis frame.

A .75" x 3.00" rubber pad will be fastened to the substructure in all areas that contact the body. The rubber will serve as an isolator between the substructure and body. The rubber will also allow body flex without damage.

The body will be secured to the sub structure in a minimum of four (4) locations with .38" (10 mm) diameter bolts.

Compartment Loading

The 62.00" (1,575 mm) compartment module, behind the cab, will be capable of holding 1,400 pounds (636 kg) on each side of the truck (2,800 pounds 1,272 kg total). The 62.00" (1,575 mm) compartment module, ahead of the rear wheels, will be capable of holding 1,400 pounds (636 kg) on each side of the truck (2,800 pounds 1,272 kg total). The 74.00" (1,880 mm) compartment module, over the rear wheels, will be capable of holding 1,000 pounds (454 kg) on each side of the truck (2,000 pounds 908 kg total). The 62.00" (1,575 mm) compartment module, behind the rear wheels, will be capable of holding 1,400 pounds (636 kg) on each side of the truck (2,800 pounds 1,272 kg total). Strain gauge test documentation of the compartment loading capacities will be provided upon request.

Roof Construction

The roof will be .12" (3 mm) 3003 bright aluminum alloy treadplate. The roof will be supported with 1.00" (25 mm) x 2.00" (51 mm) aluminum alloy tubing, .12" (3 mm) wall thickness and 2.00" (51 mm) square, .12" (3 mm) wall thickness 6061 aluminum alloy tubing welded in place approximately 16.00" (406 mm) on center. The roof perimeter will be covered with a 2.00" treadplate trim panel to provide a protective edge.

Body Size

The overall length of the body will be 272.00" (6,909 mm). The height of the body will be 92.00" (2,337 mm). The total storage space available in the body will be 946 cubic feet (26.8 cubic meters).

ROLL-UP DOOR, SIDE COMPARTMENTS

There will be eight (8) compartment doors installed on the side compartments, double faced, aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by A&A Manufacturing (Gortite).

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from plus 180 to minus 40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from plus 300 to minus 40 degrees Fahrenheit.

A polished stainless steel lift bar with locking key latches to be provided for each roll-up door. The keys to be Model J236 for all compartment doors. The lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Door(s) will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartment(s), the spring roller assembly will not exceed 3.00" in diameter.

The header for the roll-up door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

LEFT FORWARD COMPARTMENTS

Located behind the cab will be the first compartment. The compartment dimensions will be 62.00" wide x 85.75" high x 26.00" deep at the floor level. The area over the frame rails will be 62.00" wide x 63.75" high and will extend through to the right side of the body. The compartment clear door opening will be 59.50" wide x 69.00" high.

The second compartment behind the cab will be 62.00" wide x 85.75" high x 26.00" deep at the floor level. The area over the frame rails will be 62.00" wide x 63.75" high and will extend through to the right side of the body. The compartment clear door opening will be 59.50" wide x 69.00" high.

Mounting Tracks

Installed in all of the storage compartments on the vehicle will be mounting tracks for accessories such as trays and shelves.

LEFT OVER WHEEL COMPARTMENT

Located above the rear wheels will be a compartment. The compartment dimensions will be 74.00" (1,880 mm) wide x 53.00" (1,346 mm) high. The depth will extend through to the right side of the body. The compartment clear door opening will be 71.50" (1,816 mm) wide x 36.25" (921 mm) high.

The compartment will have support structure to provide 1,500 lb (680 kg) per side for a total compartment load rating of 3,000 lb (1,361 kg).

Wheel Well Area

The rear fender will be an integral part of the body and compartment modules. The inside of the fender will be fitted with a full circular inner fender liner constructed of aluminum.

LEFT REAR COMPARTMENT

Located behind the rear wheels will be a compartment. The compartment dimensions will be 62.00" wide x 85.75" high. The depth will extend through to the right side of the body. The compartment clear door opening will be 59.50" wide x 69.00" high.

RIGHT FORWARD COMPARTMENTS

Located behind the cab will be the first compartment. The compartment dimensions will be 62.00" wide x 85.75" high x 26.00" deep at the floor level. The area over the frame rails will be 62.00" wide x 63.75" high and will extend through to the left side of the body. The compartment clear door opening will be 59.50" wide x 69.00" high.

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COMPRESSOR ACCESS

Built into the roof design of the apparatus will be a removable section of the roof to access the compressor for complete removal as one unit. The roof section will be constructed of aluminum treadplate and bolted in place.

AWNING

A roll-up style awning made of a fire retardant type material will be supplied. The awning will be stored in a metal housing on the side of the body when not in use. When fully extended, the awning will be self supported without the use of poles extending to the ground. Lift handles will be provided for leverage to raise the awning. A slider bar will be provided to raise the arms out of the way for a clear path when walking under the awning.

The awning will be the full length of the body. The awning will extend out approximately (8) eight feet from the body. The color will be gray.

The awning will be installed one each side.

A total of two (2) will be supplied.

TOOL BOX

Tool box(es) construction of .50" thick, UPF plastic with a cut out carrying handle on each end will be provided.

The tool box(es) will be held in place to prevent movement while the vehicle is in motion. There will be a plastic edge provided at the front of the storage location providing a sliding surface for box removal.

The exterior box dimensions will be 11 x12 x 30.

There will be 16 provided. The tool box(es) will be located d-3-p-3.

SCBA BRACKET

A Zico SCBA bracket, with a footplate, and a collision restraint strap will be provided.

A total of 16 will be provided D/4/P/4 TOOL BOARD.

ROOF COMPARTMENT, 9 FOOT

A compartment constructed of .12" bright aluminum treadplate will be provided. The compartment will be of single wall design, with a floor, and have a 1.00" flange around the top to provide a weather resistant seal.

The compartment door will be constructed of .12" bright aluminum treadplate that has a 1.00" flange formed down, to provide an additional seal. The compartment door will hinge on the outboard side with a full length stainless steel hinge. A chrome plated grab handle will be installed on the door for opening. Two (2) gas cylinder struts will assist and hold the door in the open position. A socket and plunger assembly will be provided to hold the door closed. A weather-strip seal will be provided on the inside of the door, around the edges.

A 4.00" diameter compartment light will be mounted to the underside of each door. An automatic door switch will turn the light on when the door is opened. The switch will also provide indication to the "open door" indicator light, inside the cab.

The compartment will be 108.00" long x 26.00" wide x 18.00" deep. The compartment will be bolted on to the roof of the body.

There will also be a lift up rear access door on the compartment. The door will be as large as possible. A lift and turn pawl latch will retain the door in the closed position. A gas spring will be installed to hold the door in the upright position.

A total of one (1) will be provided d/s roof.

ROOF COMPARTMENT, 9 FOOT

A compartment constructed of .12" bright aluminum treadplate will be provided. The compartment will be of single wall design, with a floor, and have a 1.00" flange around the top to provide a weather resistant seal.

The compartment door will be constructed of .12" bright aluminum treadplate that has a 1.00" flange formed down, to provide an additional seal. The compartment door will hinge on the outboard side with a full length stainless steel hinge. A chrome plated grab handle will be installed on the door for opening. Two (2) gas cylinder struts will assist and hold the door in the open position. A socket and plunger assembly will be provided to hold the door closed. A weather-strip seal will be provided on the inside of the door, around the edges.

A 4.00" diameter compartment light will be mounted to the underside of each door. An automatic door switch will turn the light on when the door is opened. The switch will also provide indication to the "open door" indicator light, inside the cab.

The compartment will be 108.00" long x 26.00" wide x 18.00" deep. The compartment will be bolted on to the roof of the body.

A total of two (2) will be provided p/s roof.

ROOF COMPARTMENT, FULL ROOF WIDTH

A compartment constructed of .12" bright aluminum treadplate will be provided. The compartment will be of single wall design, with a floor, and have a 1.00" flange around the top to provide a weather resistant seal.

The compartment door will be constructed of .12" bright aluminum treadplate that has a 1.00" flange formed down, to provide an additional seal. The compartment door will hinge on the outboard side with a full length stainless steel hinge. A chrome plated grab handle will be installed on the door for opening. Two (2) gas cylinder struts will assist and hold the door in the open position. A socket and plunger assembly will be provided to hold the door closed. A weather-strip seal will be provided on the inside of the door, around the edges.

A 4.00" diameter compartment light will be mounted to the underside of each door. An automatic door switch will turn the light on when the door is opened. The switch will also provide indication to the "open door" indicator light, inside the cab.

The compartment will be full width of the roof x 26.00" front to back x 18.00" deep. The compartment will be bolted on to the roof of the body.

A total of one (1) will be provided roof towards the front.

VERTICAL COMPARTMENT DIVIDER

A vertical compartment divider will be provided. The divider will be constructed of .12" aluminum sheet with flanges formed on the ends to provide strength and a means for attaching to the compartment.

A total of two (2) will be installed d-3 p-3.

HITCH RECEIVER

There will be three (3) hitch receivers provided on the apparatus. One (1) receiver will be installed at the rear, with the remaining two (2) located at the sides of the apparatus in front of the rear wheels through the body fender panel. The hitch receivers will be constructed of heavy steel tubing and reinforced to the apparatus framework.

Rear Receiver

A Class III hitch receiver will be installed at the rear of the apparatus. The class III rating is 5,000 lb towing and 500 lb tongue weight.

The hitch will be constructed of heavy steel tubing and reinforced to the truck framework, for the receiving portion, including a heavy-duty slide-in tube with a ball. The tube will be held in place with a single retaining pin accessible from below the rear tailboard.

There will be two (2) safety chain points provided near the hitch capable of holding the maximum trailer GVWR specified for the receiver.

A label will be provided stating the maximum GVWR and tongue weight of the trailer being connected to the receiver.

The trailer electrical connection will be a seven (7)-way flat blade recreational vehicle connector for trailer wiring compatible with electric brake systems, and a second connector with inverted ground meeting SAE J560 standards providing an auxiliary connection for warning devices.

Side Receivers
The side hitch receivers will be capable of retaining a 9,000 lb portable winch.

Stainless steel doors will be provided on the exterior of the body in the fender area to cover the ends of receivers. Each door will be a hinged, spring loaded door with a flush latch to prevent it from opening while not in use. A stainless steel trim ring will be provided around the opening to prevent damage to the surrounding exterior finish.

Receiver Access
Access to the side receiver pins will be provided through the compartment ahead of the receiver and through the fender liner. The liner access will have a small hinged door provided to prevent debris from entering the area of the retaining pin. The access inside the forward compartment will be provided with a rubber cover to prevent road dust from entering the compartment.

ADJUSTABLE "J" HOOKS, FOUR (4)

An aluminum track will be provided with a set of four (4) adjustable "J" hooks commonly used to hold cord, rope and hoses. The hooks will be made of aluminum.

A total of two (2) sets will be provided ONE IN D-1 REAR BULKHEAD WALL AND ONE IN P-1 REAR BULKHEAD WALL.

LADDER ZICO MODEL RL-2-6

A Zico model RL-2-6 Quic-Ladder will be provided at the rear of the body on the rear side. The ladder handrails will be constructed out of 1.25" heavy-walled aluminum tubing that is covered with a black, heat-resistant, powder coated finish. Each step will have a flat non-skid surface that is 3" deep x 15.5" wide. A swing-out and down extension section at the bottom of the ladder will be provided.

STORAGE RACK FOR SPARE SCBA BOTTLES

A storage rack will be provided p-4 to hold 48 spare SCBA bottles. The rack will be built to hold the bottles 7.5 x 7.5.

The rack will be constructed of .12" aluminum. The rack will be left unpainted. A rubber bumper will be provided on the rear wall of each slot to absorb the shock of the bottle being placed into position. A scuff tape material will be applied to the inside of the slots to reduce scratching the bottles.

The inside dimension of each bottle slot will be 7.50".

SHELF, 60" x 42"

A shelf will be provided in a compartment. The shelf will be constructed of .18" thick aluminum, formed to provide a 2.00" high wall around the perimeter. The corners will be welded, to provide a rigid unit.

The shelf will be secured within the compartment by means of adjustable threaded fasteners. The fasteners will slide in an extruded aluminum track to provide height adjustment.

The shelf interior dimension will be 59.87" wide x 41.62" long.

A total of five (5) will be provided TWO IN D-1, AND THREE IN P-1.

SHELF, 72" x 42"

A shelf will be provided in a compartment. The shelf will be constructed of .18" thick aluminum, formed to provide a 2.00" high wall around the perimeter. The corners will be welded, to provide a rigid unit.

The shelf will be secured within the compartment by means of adjustable threaded fasteners. The fasteners will slide in an extruded aluminum track to provide height adjustment.

The shelf interior dimension will be 71.87" wide x 41.62" long.

A total of five (5) will be provided D-3.

SLIDE-OUT TOOLBOARD, 42" x FULL LENGTH

A slide-out aluminum toolboard will be provided. The tool board will be a minimum of .18" thick with .20" diameter holes in a pegboard pattern, on 1.00" centers.

The board dimensions will be 42.00" high x 85.50" long.

A 1" x 1" aluminum square tubing will be welded around the perimeter of the board for strength.

The board will be mounted on a small sliding tray. The construction of the tray will consist of 6061-T6 aluminum extrusions for the sides with a .18" thick aluminum floor. The corners will be welded to form a rigid unit.

The capacity rating will be 500 pounds minimum in the extended position. The slide assemblies will be manufactured with 6061-T6 aluminum extrusions. The tray will be supported by a minimum of eight (8) roller bearings each rated for a 500 pound load.

The board will slide-out of the compartment in both directions two thirds of its length. Positive locks for the stowed and extended position will be provided.

The board will be mounted to an aluminum track to allow sideways adjustment of the tool board.

There will be a total of five (5) provided D4/P4.

SLIDE-OUT ADJUSTABLE HEIGHT TRAY, 53" x 42"

A sliding tray will be provided. The construction will consist of 6061-T6 aluminum extrusions for the sides with a .18" thick aluminum floor. The corners will be welded to form a rigid unit.

The capacity rating will be 500 pounds minimum in the extended position. The slide assemblies will be manufactured with 6061-T6 aluminum extrusions. The tray will be supported by a minimum of four (4) roller bearings each rated for a 500 pound load.

An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand. The tray will slide-out of the compartment two thirds of its depth.

Each tray will be adjustable up and down within the compartment.

The tray will have an inside dimension of 52.93" wide x 41.62" long x 3.00" long.

There will be a total of five (5) provided 2 IN P-1 AND 3 IN D-1.

REAR BUMPER

A rear bumper will be provided that is an integral part of the rear body substructure.

The bumper will be approximately 13.00" deep x 90.00" wide.

The bumper will have an aluminum treadplate deck mounted to the frame providing a stepping surface.

A kickplate will be provided above the bumper extending up on the rear bulkheads approximately 3.00"

REAR WALL, SMOOTH ALUMINUM

The rear wall will be smooth aluminum.

TOW HOOKS

Two (2) painted steel tow hooks will be installed under the tailboard of the truck.

When force is applied to the tow hooks, it will be transmitted to the frame rail.

The tow hook assembly will be designed and positioned to allow up to a 30 degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle.

The tow hook design will have been fully tested and evaluated using strain gauge testing techniques.

COMPARTMENT LIGHTING

There will be 12 compartments with On Scene Solutions LED compartment light strips. The strips will be centered vertically along each side of the door framing. The compartments with these strip lights will be located all.

Opening the compartment door will automatically turn the compartment lighting on.

MOUNTING TRACKS

There will be ten (10) sets of tracks for mounting shelf(s) in all. These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be painted to match the compartment interior.

RUB RAIL

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS

Stainless steel fender crowns will be provided around the rear wheel openings.

A rubber welting will be installed between the body and the crown to seal the seam and restrict moisture from entering.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

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AIR HORN SYSTEM

Two (2) Grover air horns will be provided and located one (1) each side of the engine. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent the loss of air, in the air brake system.

AIR HORN CONTROL

The air horns will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.

ELECTRONIC SIREN

A Whelen 295HFS2X, electronic remote siren with recessed mounted control head, a second Whelen 295HFSDA amplifier kit, and noise canceling microphone, will be provided.

NFPA 1901, Section 13.9.1.1 requires the siren manufacturer to certify the siren as meeting the requirements of SAE J1849, *Emergency Vehicle Sirens*.

Per the fire department specification, the siren and siren speaker come from separate manufacturers and a certification is therefore invalid. The apparatus will be non compliant to NFPA 1901 standards at time of contract execution.

Siren will be actuated by a foot switch on the officer's side and by the horn button in the steering wheel. The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch.

SPEAKER

There will be two (2) speakers provided. Each speaker will be a Whelen, Model SA122FMA, cast aluminum, 100-watt, flange mount with natural aluminum finish. Each speaker will be connected to the siren amplifier.

The speaker(s) will be recessed in the front bumper on the driver's side.

MECHANICAL SIREN, (Auxiliary)

A Federal Q2B siren will be furnished. A siren brake button will be installed on the switch panel.

The control solenoid will be powered up after the emergency master switch is activated.

The mechanical siren will be mounted on the bumper deckplate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.

The mechanical siren will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.

CAB ROOF LIGHTBAR

There will be one (1) 55.00" Whelen Freedom, Model: FN**QLED lightbar mounted on the cab roof.

This lightbar will include the following:

- Two (2) red flashing forward facing LED modules.
- Two (2) white flashing forward facing LED modules.
- Two (2) red flashing front corner LED modules.
- One (1) red flashing driver side facing LED module.
- One (1) red flashing officer side facing LED module.

There will be one (1) switch located in the cab on the switch panel to control this lightbar.

The color of the lenses will be clear.

The white LED lights will be deactivated when the parking brake is applied.

FRONT WARNING LIGHT

There will be two (2) Whelen, Model M6** LED flashing lights provided at the front of the truck.

The driver's side front warning light to be blue.

The passenger's side front warning light to be red.

The color of the lenses will be clear.

The lights will be mounted with with a flange.

The lights will be activated by a switch on the cab instrument panel.

SIDE ZONE LOWER LIGHTING

Six (6) Whelen Model M6* LED flashing warning lights with bezels will be located in the following positions:

Two (2) lights, one (1) each side on the bumper extension.

The side front lights to be red.

Two (2) lights, step well.

The side middle lights to be red.

Two (2) lights, behind rear wheels.

The side rear lights to be red.

All six (6) lights will include a clear lens.

All six (6) lights will be controlled by a lighted switch on the cab switch panel.

SIDE WARNING LIGHTS

There will be two (2) Whelen, Model M9*C LED flashing warning light(s) with bezel(s) provided ONE EACH SIDE FRONT OF BODY ON THE SIDES.

The color of the lights will be red.

All of these lights will include a clear lens.

These lights will be activated with the Side Zone Lower warning lights.

REAR ZONE LOWER LIGHTING

Two (2) Whelen, Model M6*C LED flashing warning lights will be located at the rear of the apparatus.

The driver's side rear light to be red.

The passenger's side rear light to be red.

Both lights will include a lens that is clear.

Both lights will be controlled by a lighted switch on the switch panel.

WARNING LIGHTS (Rear and Side upper zones)

Four (4) Whelen, model M9*C LED flashing warning lights will be provided at the rear of the apparatus.

The side rear upper light on the driver's side to be red.

The rear upper light on the driver's side to be red.

The rear upper light on the passenger's side to be red.

The side rear upper light on the passenger's side to be red.

These lights will include a lens that is clear.

One (1) switch located in the cab on the switch panel will control these lights.

TRAFFIC DIRECTING LIGHT

There will be one (1) Whelen model TAM85, 46.00" long x 2.84" high x 2.24" deep, amber LED traffic directing light installed at the rear of the apparatus.

The Whelen model TACTLD1 control head will be included with this installation.

The auxiliary warning mode will be activated with the control head only.

This traffic directing light will be surface mounted at the rear of the apparatus as high as practical.

The traffic directing light controller will be located within the switch panel on the center console. The controller will be within easy reach of the driver.

ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT

The following guidelines will apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus five (5) cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.

Grounding

Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.

An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.

All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.

Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the information detailed in Figure 19-4.10.

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

Overcurrent protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144 inches. (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degrees Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods

Fixed wiring systems will be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)

or

- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows:

- Separated by a minimum of 12 inches (305 mm), or properly shielded, from exhaust piping

- Separated from fuel lines by a minimum of six (6) inches (152 mm) distance.

Electrical cord or conduit will be supported within six (6) inches (152 mm) of any junction box and at a minimum of every 24 inches (610 mm) of continuous run. Supports

will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

Wiring Identification

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24 inches (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30 inches (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

Dry Locations

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30 inches (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

Listing

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

Electrical System Testing

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900 volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per Current NFPA 1901 Standards

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by Underwriters Laboratories.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

LIMA 40kW THREE PHASE GENERATOR

The apparatus will be equipped with a complete electrical power system. The wiring and generator installation will conform to the present National Electrical Code Standards of the National Fire Protection Association. The installation will be designed for continuous operation without overheating and undue stress on components.

The generator will be a three phase, four (4)-wire, Lima 40kW Model 360MDL0085 driven by a transmission "power takeoff" attached to the side of the transmission.

Generator performance will meet the American National Standards Institute (ANSI) C84.1-1982 voltage requirement as utilized from the receptacle.

Generator will have a built in automatic voltage control.

Generator will have a NEMA MG21 rating.

- Continuous Duty Rating: 40,000 watts
    - Phase: Three
    - Nominal Cycles: 60 hertz
    - Nominal Amp Rating: 120 at 240-volts
    - Engine Speed at Engagement: Idle
    - Engine Speed Engaged: 1132/1374 rpm range
    - Generator Rpm: 1800 rpm

The output of the generator will be controlled by an electronic governor. An electrical instrument gauge panel will be provided for the operator to monitor and control the electrical operations and output. The governor will be programmed so the generator's output is at 60 hertz.

The main chassis transmission PTO will power the generator.

The generator will be operable in the stationary mode with a shift control located inside the cab with an indicator light to note engagement. For safety, the automatic high idle will be activated through interlocks only after the chassis parking brake control is in the park position, the generator PTO transmission has made a complete shift and the truck transmission is in neutral. When necessary, an electronic ramping device will be built into the system to allow smooth acceleration on generator start-up. The ramp will disable once the generator is on-line. The electronic governor will protect the system by dropping the engine to idle at the start of an overspeed condition when a mechanical (non-electronic) engine is used.

An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

To properly monitor the generator performance and load demands during operation, the generator will be equipped with a full instrument and control package. This panel will be mounted adjacent to the load center. The unit will be a four (4)-wire, three (3)-phase, 120/240-volt system.

The following instruments will be installed in the panel:

- One (1) Voltmeter
- Three (3) Ammeters
- One (1) Frequency Meter
- One (1) Hour Meter
- One (1) "Power On" Green Indicator Light
- One (1) PTO Engagement Indicator Light
- Two (2) Fuse Holders: With two (2) amp fuses for gauge protection

The meter and indicators will be installed near eye level in the compartment. Instruments will be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used will be accurate within +/- two (2) percent.

In addition to the generator indicators there will be engine, transmission indicators, and atruck alarm provided to ensure proper engine and transmission operation.

The system will be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components will be to the highest industry quality standards available on the domestic market. The equipment will be the type designed for mobile installations subject to vibration, moisture and severe continuous usage.

All electrical wiring from the load center will be fine stranded copper S.O. type with a 600 volt jacket. The wire will be sized to the load and circuit breaker rating. The wire size will be ten (10)-gauge on 30 amp circuits, 12-gauge on 20 amp circuits and 14-gauge on 15 amp circuits. The S.O. cable will be run in corner areas and extruded aluminum

pathways built into the body for easy access. Any S.O. cord not run in an enclosed raceway or cable tray will have an additional abrasion resistant covering.

The main load center will have circuit breakers rated to load demand.

Individual breakers will be provided for all receptacles to isolate a tripped breaker from affecting any other on-line equipment.

GENERATOR LOCATION
The generator will be mounted under the body between the frame rails.

GENERATOR START
A switch will be located on the cab instrument panel to engage the generator.

CIRCUIT BREAKER PANEL
The circuit breaker panel will be located D-4 FRONT.

SUB FEED CIRCUIT BREAKER BOX
A Cutler Hammer sub feed box will be supplied with current limiting circuit breakers to protect the on board circuits when an auxiliary power source is used. The sub feed box will distribute power to specific circuits in the vehicle.

Location will be D-4 FRONT.

ELECTRIC CORD REEL
Furnished with the 120/240 volt AC electrical system will be a Akron, cord reel. The reel will be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The switch will be protected with a fuse and installed at a height not to exceed 72 inches above the operators standing position.

The reel will be capable holding 200 feet of 10/4 600 volt cable.

The reel will include the following features:

- Heavy-duty construction for durability
- All stainless steel hardware
- Standard **(Silver)** powder coated finish
- Rolled disc edges
- Live slip ring design
- Includes the gang box attached to the commutator
- Universal frame with four motor locations
- Meets NFPA requirements for reel overage of 10%

The exterior finish of the reel(s) will be painted job color matching the body exterior.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.

A label will be provided in a readily visible location adjacent to the reel. The label will indicate current rating, current type, phase, voltage and total cable length.

A total of two (2) cord reels will be provided ONE (1) IN D-4 AND ONE (1) IN P-4.

The cord reel should be configured with four (4) conductors.

REEL WARRANTY
The electric reel will come with a five (5) year warranty provided by the reel manufacturer.

CORD
Provided for electric distribution will be two (2) lengths, one (1) for each reel, of 200 feet of yellow 10/4 electrical cord. No connector will be installed on the end of the cord.

PORTABLE JUNCTION BOX
There will be four (4) 120 vac 20 amp twist lock receptacles provided in a portable junction box. The junction box will be of weatherproof construction and have flip up lids lined with soft neoprene rubber at each outlet opening.

No connector.

A total of two (2) will be provided.

ROLLER GUIDE
Installed on the compartment wall that the cord reel is mounted in will be a captive roller assembly to aid in the pay out of the cord from the reel. There will be one for each reel for a total of two (2) roller guides.

JUNCTION BOX HOLDER
There will be an aluminum junction box holder installed adjacent to the cord reel. A total of two (2) will be installed.

NEXT TO REEL.

20 AMP RECEPTACLE
Wired to the power supply will be three (3) receptacles that are a 120 volt 20 amp three wire twist-lock NEMA L5-20 type with weather resisting cover located TBD.

120 VOLT EXTERIOR RECEPTACLE
Receptacle will be a NEMA 5-20, 120 volt, 20 amp, three (3) wire duplex household type with a weather resistant cover connector to the generator.

There will be two (2) receptacles provided.

TBD.

30 AMP RECEPTACLE
Wired to the power supply will be a 30 amp, 240v, L6-30 Daniel Woodhead twistlock receptacle. The receptacle will be protected by a 30 amp 240v circuit breaker and will be located TBD.

A total of three (3) receptacles will be supplied.

CASCADE STORAGE VESSELS

The breathing air cascade system will meet NFPA requirements for a compressed air system that is used to provide air for human respiration, using self-contained breathing apparatus. It will be capable of operating in a range of ambient temperatures between 0 degrees Fahrenheit and 125 degrees Fahrenheit (-18 degrees Celsius and 52 degrees Celsius), with a relative humidity up to and including 100 percent.

All flexible hose will be installed without excessive bending and to prevent cuts, abrasions, and excessive temperatures. Also, the hose will be installed to allow its replacement without requiring removal of major vehicle components or vehicle-mounted equipment.

The breathing air system will be easy to maintain, with an arrangement of components that allows easy inspections, servicing, calibration, and adjustments without removing the components.

All major components in the breathing air system, including accessories, will be clearly identified and labeled. Appropriate caution and warning labels will be affixed where necessary to allow the equipment to be safely operated and maintained.

Two (2) complete manuals that document the operation and maintenance of the system will be provided.

The complete breathing air system will be tested for leaks and for proper functioning prior to its delivery.

The cascade system storage cylinders will consist of the following major components:

The cascade system will consist of the following major components:

- Six (6) ASME Storage Cylinders
- Six (6) ASME Storage Cylinder Shutoff Valves
- Six (6) ASME Storage Cylinder Gauges
- Six (6) ASME Storage Cylinder Relief Devices
- One (1) ASME Storage Cylinder Mounting Rack
- Six (6) Inlet/Outlet Connections

The cascade storage vessels, will each be rated for 6000 psi. These vessels will be design and constructed to conform to the requirements of the American Society of Mechanical Engineers' Pressure Vessel Code per OSHA 29 CFR 1910.169 for transporting compressed air. Each vessel will hold 525 cubic feet of air at rated pressure, for a total system volume of 3,150 cubic feet. Each cylinder will be equipped with a dedicated shutoff valve, a pressure gauge and an ASME relief valve, installed immediately adjacent to it. Each cylinder will have a drain hose routed to a dedicated drain valve, which will be mounted in a remote location near the bottom of the truck body.

The storage vessels will be installed in compartment D3/P3.

BREATHING AIR SYSTEM GENERAL DESIGN

The air system will meet the requirements for a compressed air system used to provide air suitable for human respiration with self-contained breathing apparatus.

If a compressor or booster system is supplied it will be capable of operating in a range of ambient temperature between 32 degree Fahrenheit and 100 degrees Fahrenheit (0 Celsius and 43 degrees Celsius).

If a cascade system is supplied it will be capable of operating in a range of ambient temperatures between 0 degrees Fahrenheit and 125 degrees Fahrenheit (-18 degrees Celsius and 52 degrees Celsius)

The air system will be capable of withstanding storage temperatures between 0 degrees Fahrenheit and 125 degrees Fahrenheit (-18 degrees Celsius and 52 degrees Celsius) without damage.

The air system in general will be capable of being stored and operated in environments with relative humidity up to and including 100 percent.

All flexible hose will be installed in such a manner as to prevent cuts, abrasions, exposure to damage, excessive temperatures, damage from loose equipment and excessive bending. The hose will be installed in a manner that permits removal of hose without removal of major vehicle components or vehicle mounted equipment.

The air system design will provide for maintainability by ensuring that the arrangement of the components will allow easy inspections, servicing, calibration and adjustment without removing the components.

All major components in the air system, including accessories, will be clearly identified and labeled. Appropriate caution and warning labels will be affixed where necessary to allow the equipment to be safely operated and adjusted.

Two complete manuals will be provided that document the operation and maintenance of the system.

If a compressor is supplied, the temperature of the compressed air will not exceed 25 degrees Fahrenheit (14 degrees Celsius) above ambient temperatures when measured at the discharge nozzle of the compressor after cooler. Audible and visual alarms, automatic shutdown and prevention of automatic restart will occur if any of the following conditions exist: low oil level or low oil pressure, high discharge air temperature, more than 24 ppm of moisture in the purification system outlet and if the carbon monoxide level exceeds 10 ppm.

The purification system will be capable of producing the required air quality for a minimum of 50 hours with inlet at 80 degrees Fahrenheit (27 degrees Celsius) at saturation.

Low pressure breathing air supply from reels or in remote locations will be provided with a low air pressure audible alarm warning device when the air volume is at or below 20 percent. This will include upper and lower control stations on aerial devices.

The complete breathing air system will be tested prior to delivery.

The fire department will receive training with this breathing air system. A demonstration of the operation of the breathing air system will be provided at the factory.

This demonstration will include the following:

- Review of all safety items in the system
- Review of all component manuals
- A walk around review of all the components that make up the system
- A hands-on system demonstration of each functional item in the system, during which proper use of the system components will be described
- A demonstration of how to properly shutdown and maintain the system

BREATHING AIR SYSTEM CONTROL PANEL

A control panel for the breathing air system will be provided. The control panel will be 9.50" wide x 42.75" high x 23.00" deep and it will be attached to the side of a SpaceSaver™ fill enclosure. It will be made of aluminum that is .18" thick and has a painted, glare-resistant finish.

A painted aluminum box will house and protect the components behind the control panel. The panel will pivot on its mounting fasteners, to allow for maintenance of components behind the panel.

All gauges will be at least 2.50" in diameter, and they will be filled with glycerin. All valves will be a slow-operating screw type that will require minimal force, from three-fingered operation. All identification tags will be recessed in color-coded, chrome-plated bezels. A rope light will be fastened to the full vertical height of the control panel, to provide uniform illumination to all controls on the panel.

All tubing that is behind the panel will be stainless steel, with the exception of the supply hoses from the air storage and the hose that runs to the SCBA fill. These tubes and hoses will have a 4:1 safety factor.

A refill fitting will be supplied on the face of the air control panel, to allow the refilling of the system storage cylinders from an external source. With 6000 psi storage cylinders, a male CGA-677 fitting will be provided, and with 4500 and 5000 psi storage cylinders, a male CGA-347 fitting will be provided.

There will be four (4) storage banks, each consisting of one (1) valve and one (1) gauge, provided on the control panel. If there are more cylinders than banks, two (2) cylinders will be connected to the first storage bank (or banks) as needed.

The system will be regulated with one (1) breathing air supplied gauge, one (1) 0-4500 psi regulator, and one (1) regulated pressure gauge.

A stainless steel guard will be installed over each pressure regulator, to prevent inadvertent or accidental adjustments. A pressure relief valve preset, at no more than ten percent above the regulator output setting, will be provided. A warning label that

specifies the appropriate pressure regulator settings and the pressure relief setting will be placed adjacent to the regulator.

An SCBA fill valve to control the air flowing into the SCBA cylinders will be supplied on the air control panel. An SCBA fill gauge will be supplied on the air control panel, to view the pressure in the SCBA cylinders during filling. This valve and gauge will be used to manually vary the SCBA fill rates in accordance with the SCBA manufacturer's recommendations.

The panel will be configured without a booster pump.

The panel will be configured with a compressor connection.

FILL ENCLOSURE

The fill enclosure will be designed for mobile applications to fill **SCBA or SCUBA** cylinders. The enclosure will totally enclose the cylinder during the fill process. The enclosure will contain the cylinder and all fragments in the event of rupture during the fill process.

Construction will be of .18" inch plate steel. The fill enclosure door will be constructed of .25" stainless steel. The cylinder holders will be lined with a material to protect each cylinder from abrasion.

The fill enclosure will be designed to allow the filling of two **(2) SCBA or SCUBA** bottles either individually or simultaneously. Access to the enclosure for loading the cylinder will be through a manually operated slide up door and tilt out bottle holder. The door will be provided with a device to assist opening and provide smooth operation.

The loading position from the compartment floor to the center of the bottle valve will be 14.6" in the lower holder and 23.50" in the upper holder. This will place the lower loading position at waist height on average height vehicles.

The maximum length of either the SCBA or SCUBA bottle with the valve and fill adapter will be 29 inches in the lower holder and 27 inches in the upper holder.

Automatic safety interlocks will prevent cylinder filling until the door is completely closed. Two (2) fill hoses with SCBA or SCUBA adapters will be provided within the enclosure.

If a cylinder should rupture, rapidly expanding air will be vented through an opening in the bottom of the enclosure and out through the compartment floor. A break away rubber seal will be provided to seal the compartment floor.

To ensure the integrity of the fill enclosure, bidders will provide on request, an independent certification that a production unit has successfully withstood an SCBA cylinder explosion as per NFPA.

The fill enclosure will be a SpaceSaver model 100A, 42.56" high x 13.12" wide x 23.25" deep and weighs 400 pounds.

A total of two (2) will be provided d-3forward and d-4 rearward.

FILL VALVE AND GAUGE

Provided on the air control panel will be one (1) SCBA screw type fill valve along with an SCBA fill gauge. The valve and gauge will be used to manually control and monitor all SCBA fills. The operator may vary the fill rates in accordance with the SCBA manufacturer's recommendations.

BREATHING AIR COMPRESSOR

General Requirements

The assembly will incorporate four (4) stages.It will be a reciprocating air-cooled compressor with relief valves and heat exchanger after each stage of compression. The compressor will be a combination of, double-acting and single acting cylinder/piston design with three (3) connecting rods. The cooling air will be supplied from a fan assembly mounted on the flywheel that delivers not less than 6000 cubic feet of cooling air per minute.Lubrication will be accomplished by means of a differential pressure/controlled splash system.External pressure, (force-feed) oil pump providing oil spray into the fourth stage for lubrication is not acceptable.

COMPRESSOR FEATURES

- Frameâ€“ The 100% cast iron designed to support the overhung crankshaft.Cylinders bolt directly to the cast iron frame.Frame is completely sealed yet allows for maximum accessibility
- Crankshaft â€“ A unique overhung design supported by two(2) heavy duty ball bearings with replaceable crank-pin bearing.Entire shaft is balanced with an integral counterweight to insure smooth trouble free operation.
- Connecting Rods â€“ Crank pin bearing inside the rod is precision ground requiring no alignment.
- Cylinders â€“ These are 100% cast iron, separately cast and individually bolted to the frame. The cylinders are precision honed for low oil carryover.Radial fins on the cylinders help remove heat and ensure 360 degree cooling of the cylinders.
- Pistons â€“ The first and second stages utilize a step type double acting piston, while the third stage utilizes a steeple type piston.The fourth stage uses a built-up, steeple type piston.
- Rings â€“ The first stage utilizes five (5) compression rings and one (1) oil control ring.The second stage utilizes three (3) compression rings and one (1) oil control ring.The third stage uses four (4) compression rings and one (1) oil scrapper ring.The fourth (final stage) using five (5) compression rings and one (1) oil scrapper ring.
- Flywheel â€“ The cast iron fan type flywheel with attached fan forces a â€œcycloneâ€• air blast the deep finned cylinders, multi-finned intercooler, and finned tube aftercooler.The flywheel is balanced for vibration free operation.The fan is bolted to the flywheel and is available in several sizes to match ambient conditions.
- Intercoolers â€“ The intercoolers between stages are of finned tube construction, to provide maximum cooling area.They are located directly in

the flywheel air blast, to remove the heat of compression between stages, keeping running temperatures and power loads to a minimum.The intercoolers are provided with a relief valve to prevent over-pressurization.

- Intercooler Pressure Gauge â€“ Pressure gauges are provided to display reading pressure in the intercooler(s). Abnormal pressures indicate when valve maintenance is required, eliminating costly tear down inspections.
- Lubrication â€“ Splash lubrication of running parts is simple and reliable.Lubrication dippers are integral with connecting rods and cannot come loose.
- Inlet Filter â€“ The filter has a durable carbon steel canister with baked enamel finish.A treated paper dry type) ten (10)-micron inlet filter/silencer is standard.
- Valves â€“ The first and second stage will have concentric ring valves that allow balanced and efficient inlet and discharge airflow.The third and fourth stages will have concentric ring and plate valves that are of the cartridge type for ease of maintenance.All valves will be made of premium grade stainless steel.Valve components are easily removable for inspection and maintenance.
- Unloader â€“ The unloader automatically bleeds the air from intercoolers and cylinders, providing a loadless start.This protects the motor from overload.
- Burst Disc Discharge Relief Valve â€“ The burst disc discharge relief valve, protects the system from any sudden, abnormal pressure surge.A conventional relief valve may not relieve have the capability to â€œreleveâ€• quickly enough.
- Low Oil Level Switch â€“ Low oil level switch prevents the unit from operating when oil is low.
- Air-cooled Aftercooler â€“ Air-cooled aftercooler lowers discharge air temperature to within 15 degrees F. of ambient temperature.
- Separator/Drain Traps â€“ A drain trap is supplied between the second and third stage, third and fourth stage, and at the discharge of the compressor.The accumulated water and oil vapor is automatically removed.
- Automatic Condensate Drain System â€“ An automatic condensate drain system automatically drains the condensate traps during operation and when the compressor stops.

The compressor will have piston rings on all pistons.The third and fourth stage pistons will be connected to the guide piston by a concentric retainer, such that the compression piston is free of thrust loading, and always is in contact with the guide/drive piston to prevent damage caused by a free floating piston.

PURIFICATION SYSTEM(65AL4)

1. The purification system will consist of a mechanical oil/moisture separator and three (3) chemical purification chambers (total of four (4)). The chambers will be designed to conform to the ASME code for Unfired Pressure Vessels.

2. Purification chambers will be constructed in aluminum alloy 6351 as its anti-corrosive properties exceed all other chamber materials.
3. Purification system will process a minimum of 84,000 SCF of air per cartridge set.Purified air will be measured by the actual weight of Molecular Sieve**.**Electronic dew point (DP) detection will not be used as a means to claim extended chemical cartridge life.
4. CO and dew point sensors will not be installed in the purification chamber.Sensors will be installed downstream of all chambers so the sampled air is representative of that delivered to the B.A. cylinders.

The purification system will have the following minimum ratings:

1. 6000 PSI working pressure
2. 4 to 1 safety factor.
3. 5 to 80 SCF minimum flow capacity.
4. 84,000 standard cubic feet of air purified per chemical cartridge set.

CONTROL AND MONITORING SYSTEM

All significant functions of the system will be monitored and controlled by a microprocessor Scott X4 Controller.The operational status will be presented on an annunciator panel.In the event of an out-of-tolerance condition, the â€œcontrollerâ€• will â€œalarmâ€• and stop the compressor.The â€œstatusâ€• and/or â€œcauseâ€• will be indicated on the annunciator panel.All accumulated times on all significant time sensitive functions will be recorded and displayed on command.The system will have the following as a minimum:

FUNCTIONS / PARAMETERS MONITORED AND CONTROLLED

1. Compressor Assembly
    - Compressor start/stop (stop - advise normal and alarm abnormal condition)
    - Discharge air pressure (stop - advise normal condition)
    - Auto condensate drain control (cycle drain function, advise normal condition)
    - Cool Down Cycle (on shutdown, advise normal condition)
        - The cool down system will have the capability of dumping all mechanical moisture traps every fifteen (15) minutes during compressor operation.Prior to shutdown, manually or automatically, it will open and unload all moisture drain valves.It will run for two to five minutes in order to cool and drycompletely purge the system of all accumulated water and oil vapor
    - Oil level and/or pressure (stop, alarm and advise abnormal condition)

- Give automatic service status for Air Sample, CO Monitor calibration and Purifier elements.
- Multi-level password feature for security.
- Downloadable history for diagnostic and performance evaluation.

2. Purification System
   - Dewpoint monitoring/control (Constant monitoring) (stop, alarm and advise abnormal condition)
   - Carbon monoxide monitoring/control (Constant monitoring) (stop, alarm and advise abnormal condition)
   - Auto condensate drain control (advise statusâ€‘normal condition)
   - â€œPurgeâ€• control, dumps the air exiting the purifier in order to clear up temporary alarm conditions (advise statusâ€‘normal condition)
3. Housekeeping
   - Total time on compressor assembly (advise time on command)
   - Time since compressor service (re-settable, advise time on command)
   - Time since purification cartridge change (re-settable, advise time on command)
   - Time on DP monitor cell (re-settable, advise time on command)
   - Time on CO monitor cell (re-settable, advise time on command)
   - Automatic calibration of DP and CO monitors (advise procedure on command)
4. Alarms (Audio/Visual)
   - High discharge air temperature - with automatic compressor â€œSTOPâ€• . The upper limit is factory set.
   - High discharge air carbon monoxide - with automatic compressor â€œSTOPâ€• .
   - High discharge air moisture (dewpoint) - with a â€œWARNâ€• to advise a pending filter (purification cartridge) change; an â€œALARMâ€• with automatic compressor â€œSTOPâ€• .
   - Low oil level and/or pressure - with automatic compressor â€œSTOPâ€• .
5. Special Features and Controls
   - Prolonged run time control.will stop the compressor assembly when pre-determined continuous run time has been exceeded.An audio/visual alarm and word advise is presented on the abnormal condition.â€œRESETâ€• is required.

- Time delay for false alarm recognition.Preâ€‘programmed to prevent false alarms from stopping the compressor or initial system setup and on purifier cartridge change.
- Demand Control (In Automatic mode)
- â€œEmergency Stopâ€• control mounted on the main control panel.
- Back light control switch on panel.

6. Display
   - Final Pressure - â€œStorage Fullâ€• (up to 6000 PSI)
   - Discharge Air Temperature - Up to 800 degrees Fahrenheit
   - Oil Level/Pressure -â€œGO-NO-GOâ€• alarm
   - Dew Point Level -Up to 30 degrees Fahrenheit, down to minus 100 degrees Fahrenheit
   - Carbon Monoxide Level -0 to 200 PPM
   - Timing Functions -Hours andMinutes, calendar date
7. Demand Control - The compressor will automatically respond to air â€œdemandâ€• , keeping the air receivers at 6000 PSI.When operated electrically, it will start and stop as required.When operated by an engine, the compressor will â€œloadâ€• and â€œunloadâ€• , and disengages from the engine as required to maintain pressure.When disengaged, the engine will automatically go idle and wait for the next â€œloadâ€• command.

Automatic Sequence Control

Automatic sequence control valves will be factory installed to manage the direction of airflow.When the storage and BAC pressure gauges equalize, the system will prioritize the BACs.When the BACs are fully charged, the airflow is automatically redirected so as to fill the storage air receivers.

The compressor will be installed d-2.

Electric Connection

A 240-volt, 100 amp, three (3)-pole, four (4) wire, pin and sleeve type receptacle rated for up to 30 horsepower will be wired to the power supply and located in an accessible area within sight of the compressor. A mating horsepower rated plug wired to a four (4) conductor cord will also be supplied and wired to the compressor. When disconnected from the receptacle on the truck, the plug and cord will hang out from the compartment down to within 12.00" of the ground.

Compressor Monitoring

The air compressor will be equipped with a shut down interface that requires the compartment doors be open during operation and a compartment ambient temperature switch to be installed by the apparatus manufacturer. A temperature sensing device will actuate an audible and visual alarm at the fill station operator's panel, when ambient temperature at this location exceeds 140 degrees.

OXYGEN SYSTEM

An oxygen system will be supplied with one (1) regulator and four (4) Amico oxygen outlets in the rescue body. Each outlet will have an adjustable shut off valve.

The oxygen system will be provided with the following components:

One (1) DISS connection in the forward upper P1 compartment, accessible from the interior access door
An electric O2 solenoid

A manual bypass for the solenoid

Control switching for the solenoid

One (1) oxygen bottle wrench #5082 will be provided and secured in a holder adjacent to the oxygen cylinder and secured to the wall with cable
O2 certified hose, stainless fittings and stainless crimps

All hose used will be protected in loom where it runs through the module body.
A low pressure line will be provided in the P1 compartment and will be attached to the compartment wall bulkhead fitting to prevent damage to the line. An interior access door will be provided in the P1 compartment to allow a manual bypass to be turned on from the interior of the body.
The oxygen system will meet standard KKK testing for ambulance installations
The outlets will be located P-4 REAR BULKHEAD WALL

An oxygen cylinder will be installed in a compartment IN BETWEEN.

The fire department will receive training with this breathing air system. A demonstration of the operation of the breathing air system will be provided at the factory.

This demonstration will include the following:

- Review of all safety items in the system

- Review of all component manuals

- A walk around review of all the components that make up the system

- A hands-on system demonstration of each functional item in the system, during which proper use of the system components will be described

- A demonstration of how to properly shutdown and maintain the system

HIGH PRESSURE AIR REEL

Installed in compartment d-3, p-3 will be two (2) reels complete with hose and fittings. The hose reel will be rated for 6000 psi working pressure and will be capable of holding 150 feet of high pressure .51", outside dimension, hose.

The hose reel will include the following features:

- The side discs will have rolled edges and concentric reinforcing ribs

- The drum will be roll formed with a full length weld

- A bearing will support the axle at each end of the reel to provide smooth rotation and eliminate weight on the swivel joint

- The reel axle will be the full length of the reel

- The swivel joint inlet will permit the reel to rotate freely while connected

The reel will be equipped with a 12-volt D.C. electric rewind motor operated by a push button switch which is guarded to prevent accidental operation. The switch will be installed at a height not to exceed 72 inches above the operators standing position. A properly rated circuit breaker will be provided to protect the rewind motor against short circuits and overload. A 12-volt fuse will protect the rewind control circuit.

The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the end of the hose from being wound onto the reel.

The high pressure reel will be equipped with 150 feet of Parflex fill hose, with a rated burst pressure of 20,000 lb. The fill hose will be continuous with no unions. The hose end will have a female CGA 347 swivel connector and line valve equipped with a bleed-off. A metering valve will be provided on the supply side of the hose reel which will be preset to prevent excessive flow rates that might cause the fill hose to whip in the event of a failure. A bleed valve will be provided on the supply side next to the reel rewind button to bleed off pressure. To monitor the pressure in the supply line a gauge and valve will be furnished at the air control panel. The reel air will pass through the standard supplied regulator on the air control panel, which will provide 4500 psi maximum air pressure.

A label will be provided in a readily visible location adjacent to the reel. The label will indicate whether the supply is for breathing or utility air, the operating pressure, total hose length and hose size (inside dimension).

LOW PRESSURE AIR REEL FOR TOOLS

Using the chassis air brake system, two (2) reels will be provided. An additional air tank will be provided in the chassis air system to supply each reel.

The reel system will be piped from the chassis air system with a pressure protection valve to ensure adequate air to the brake system. Plumbing to the reel will be accomplished with as few air restrictions as possible. Each reel will have a minimum of 200 feet of .38", inside dimension, Goodyear "Insta-Grip", heavy-duty, blue, #9273, hose installed on it.

The reel will be equipped with a 12-volt electric rewind motor operated by a push button rewind switch. The switch will be guarded to prevent accidental operation and installed at a height not to exceed 72 inches above the operators standing position.

The exterior finish of the reel(s) will be painted job color matching the body exterior.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided on the end of the hose to prevent the hose end from being wound around the reel.

A label will be provided in a readily visible location adjacent to the reel. The label will indicate whether the supply is for breathing or utility air, the operating pressure, total hose length and hose size (inside dimension).

The reel will be located in compartment ONE (1) IN D-4 AND ONE (1) IN P-4.

The output flow of the engine air compressor varies with engine RPM. Full compressor output is only achieved at governed engine speed. Engine speed may be limited by generators, pumps and other PTO driven options.

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

NFPA REQUIRED LOOSE EQUIPMENT, PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2009 edition, section 10.5.1 will be provided by the fire department. All loose equipment will be installed on the apparatus before placed in emergency service, unless the fire department waives NFPA section 4.21.

- One (1) SCBA complying with NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services*, for each assigned seatingposition, but not fewer than two (2), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.

- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).

- One (1) first aid kit.

- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front.

- Five (5) fluorescent orange traffic cones not less than 28" (711 mm) in height, each equipped with a 6". (152 mm) retro-reflective white band no more than 4" (152 mm) from the top of the cone, and an additional 4" (102 mm) retro-reflective white band 2" (51 mm) below the 6" (152 mm) band.

- Five (5) illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities.

- One automatic external defibrillator (AED).

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2009 edition, section 10.5.2 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2009 edition, section 10.5.2 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

COMMERCIAL CHASSIS REPAINT

In order to assure a perfect match between the chassis cab and the rest of the apparatus, or to provide the specified color not typically available from a commercial chassis manufacturer, the chassis cab will be repainted by the apparatus manufacturer.

Since it is not practical to repaint certain areas of the cab such as the fire wall, radiator core support, or bottom of the cab, the best results will be obtained by ordering the commercial chassis painted a neutral color.

PAINT

The exterior custom body painting finishing process as follows:

Manual Surface Preparation - All exposed metal surfaces on the custom body will be thoroughly cleaned and prepared for painting. Surfaces that will not be painted include all chrome plated, stainless steel, anodized aluminum and bright aluminum treadplate. Each imperfection on the exterior metal surface will be removed or filled and then sanded smooth for a smooth appearance. All seams will be sealed before painting.

Chemical Cleaning and Treatment - The metal surfaces will be properly cleaned using a acid etching system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra pure water final rinse will be applied to all metal surfaces, excluding undercarriage components, at the conclusion of the metal treatment process.

Sealer Primer Coat - A two (2) component sealer primer coat will be applied.

Topcoat Paint - Urethane base coat will be applied to opacity for correct color matching.

Clearcoat - Two (2) coats of an automotive grade two (2) component urethane will be applied. Lap style doors will be clear coated to match the body. Roll-up doors will not be clear coated and the standard roll-up door warranty will apply.

All removable items such as brackets, compartment doors, door hinges, trim, etc. will be removed and painted separately to insure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

To ensure a perfect color match between the body and chassis, the apparatus manufacturer will also repaint the commercial chassis cab. The apparatus will be painted red .

Prior to reassembly and reinstallation of lights, handrails, door hardware and any miscellaneous body items, an isolation tape or gasket material must be used to prevent damage to the finish painted surfaces (no exceptions). A nylon washer will be installed under each acorn nut or metal screw that is fastened directly to a painted body surface.

PAINT - ENVIRONMENTAL IMPACT

Contractor will meet or exceed all current State (his) regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers must be chrome and lead free.

- Metal treatment chemicals must be chrome free. The wastewater generated in the metal treatment process must be treated to remove any other heavy metals.

- Particulate emissions from painting operations must be collected by a dry filter or water wash process.

- Solvents used in clean-up operations must be collected, sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that his manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be painted black by the chassis manufacturer. It shall remain the commercial grade finish as provided.

PAINTED AIR CONDITIONING COVER AND MOUNTS

The cover of the air conditioning condenser and the mounting feet will be painted to match the color of the cab roof.

COMPARTMENT INTERIOR FINISH

The interior of the compartments will be the natural aluminum finish. There will not be any paint or other type of finish applied to the compartments.

REFLECTIVE STRIPES

Three (3) reflective vinyl stripes will be provided across the front of the vehicle and along the sides of the cab and body.

Where installed on a painted surface, the reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.

When installed on a roll-up door, the reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.

The reflective vinyl band will be provided across the front bumper.

CHEVRON STRIPING, REAR
There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The entire rear surface will be covered.

The colors will be red and fluorescent yellow green diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface will be covered with chevron striping.

DOUBLE "Z" JOG IN REFLECTIVE STRIPE
There will be a double "Z"-shaped jog provided in the reflective stripe design at each side. The design will start with a lower cab stripe and an upper body stripe. The double "Z" vertical stripes will be slanted slightly forward and located on the front body compartment.

REFLECTIVE OUTLINE STRIPE
A .25" red (tomato red) reflective outline will be applied to the top and the bottom of the reflective band. There will be eight (8) set of outline stripes required.

TOOLBOARD REFLECTIVE STRIPES
There will be ruby red reflective stripes installed on the four (4) toolboard(s) located E.

SLIDE OUT TRAY REFLECTIVE STRIPES
There will be ruby red reflective stripes installed on the front and sides of four (4) slide out tray(s) located D2.

REFLECTIVE STRIPE INSIDE CAB DOORS
A 4.00" reflective stripe will be provided inside six (6) cab doors, 2EC.

The stripe will consist of 2.00" red Diamond Grade reflective material and 2.00" yellow reflective material Diamond Grade in a diagonal pattern.

CHEVRON/INVERTED "V" STRIPING ON REAR COMPARTMENT
There will be alternating chevron striping located on the rear compartment roll up door.

The striping will consist of the following colors:

The first color will be ruby red

The second color will be ruby red

The size of the striping will be 6.00".

REFLECTIVE STRIPE, CAB DOORS
A ruby red reflective stripe will be provided on the interior of each cab door.

This stripe will be a minimum of 96.00 square inches and will meet the NFPA 1901 requirement.

LETTERING
The lettering will be totally encapsulated between two (2) layers of clear vinyl.

LETTERING
Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.

CD MANUAL, BODY PARTS ONLY
A custom parts manual for the Pierce® installed parts only will be provided in CD format with the completed unit.

The manual will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in Alphabetical order
- Instructions on how to locate parts

The manual will be specifically written for the body model being purchased. It will not be a generic manual for a multitude of different bodies.

SERVICE PARTS INTERNET SITE
The service parts information included in this manual are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

MANUALS, SERVICE
A CD format service manual supplement containing parts and service information on Pierce® installed components will be provided with the completed unit.

The manual will be specifically written for the unit being purchased. It will not be a generic manual for a multitude of different units.

MANUAL, CHASSIS OPERATION
One (1) chassis operation manual will be provided with the completed unit.

ONE (1) YEAR MATERIAL AND WORKMANSHIP
Each new piece of apparatus will be provided with a minimum one (1) year basic apparatus material and workmanship limited warranty. The warranty will cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate will be submitted with the bid package (No Exception).

CHASSIS WARRANTY
The basic chassis warranty is for a total of **three (3) years and 200,000 miles**.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

TRANSMISSION WARRANTY
The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty to be provided by Allison Transmission and not apparatus builder.

TEN (10) YEAR STRUCTURAL INTEGRITY
The Pierce Encore rescue apparatus body limited warranty certificate, WA0016, is included with this proposal.

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TEN (10) YEAR PRO-RATED PAINT AND CORROSION
A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP
The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.

VEHICLE STABILITY CERTIFICATION
The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

CAB INTEGRITY
The cab has been tested to and passed the following standards:

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.

AMP DRAW REPORT
The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

1) Documentation of the electrical system performance tests.

2) A written load analysis, which will include the following:

A) The nameplate rating of the alternator.

B) The alternator rating under the conditions specified per:

Applicable NFPA 1901 or 1906 (Current Edition).

C) The minimum continuous load of each component that is specified per:

Applicable NFPA 1901 or 1906 (Current Edition).

D) Additional loads that, when added to the minimum continuous load, determine the total connected load.

E) Each individual intermittent load.

All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).

10/25/2012 AIR SUPPLY TRUCK