

# **Town of Scarborough, Maine**

## **Fire Department**

### **Invitation to Bid Heavy Rescue Apparatus**

**November 15, 2005**

TOWN OF SCARBOROUGH, MAINE

FIRE DEPARTMENT

The Town of Scarborough invites you to submit a formal bid for furnishing a Heavy Rescue apparatus in accordance with the attached specifications. If there are any questions that arise during any part of the bidding process, please contact:

Fire Chief B. Michael Thurlow  
Scarborough Fire Department  
246 U. S. Route One  
Scarborough, Maine 04074  
Phone (207) 883-7760 x 201  
Fax (207) 883-0278  
e-mail [mthurl@ci.scarborough.me.us](mailto:mthurl@ci.scarborough.me.us)

A copy of all bids and requested materials must be delivered in a sealed envelope marked "Formal Bid for Heavy Rescue". The sealed bid must be postmarked or hand-delivered to:

Attention Town Clerk – Heavy Rescue Bid  
Town of Scarborough Municipal Offices  
P. O. Box 360  
259 U. S. Route One  
Scarborough, ME 04074

by 3:30 p.m.. on December 16, 2005. Bids will be opened at 3:30 p.m. on December 16, 2005, at the Scarborough Municipal offices at the address above.

The Town of Scarborough reserves the right to accept or reject any or all bids should it be deemed in the best interest of the Town, to waive any minor discrepancies or technicalities, to further negotiate with any bidder, and reserves the right to inspect the equipment prior to delivery.

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## **1. Intent**

- 1.1. The intent of these specifications is to set forth minimum standards for the design, construction, performance, and acceptance requirements for a Heavy Rescue apparatus. All components not specifically mentioned herein, but which are necessary for completion of the unit shall be included and shall conform to the best practices known to the fire apparatus industry. Each bidder is required to reply in the format of these specifications to facilitate the purchaser's review of the bid.
- 1.2. It is not the intent of these specifications to favor any one manufacturer and, therefore, should not be considered restrictive. Throughout these specifications there are references to certain brand-name components from particular manufacturers that have been included for specific reasons. The specifications have been designed to derive an acceptable performance criteria. The model bid must have been in production and available to the fire service for a period of not less than five years.
- 1.3. It is further intended that the latest edition of N.F.P.A. #1901 shall apply in total unless otherwise specifically omitted.

## **2. Variance from Specifications**

- 2.1. Each bidder shall submit a list of any and all exceptions to these specifications with the reason for each exception and shall clearly mark the list "EXCEPTIONS TO SPECIFICATIONS". Exceptions explained to the satisfaction of the Fire Chief of the Town of Scarborough, Maine (the "Fire Chief") will not be a cause for rejection. Failure to comply with the listing of exceptions will constitute a cause for rejection. Or, if not discovered until delivery, a penalty of up to ten percent of the total purchase price of the vehicle.
- 2.2. Under no conditions will any deviation from these specifications be acceptable without the written consent of the Fire Chief of the Town of Scarborough, Maine. Neither the Town of Scarborough, Maine, nor any of its agents or officials, shall be held liable for any infringements of patents or patented processes, devices, or articles used in the manufacture of the proposed fire apparatus, or any of the appliances furnished under the contract.
- 2.3. The bidders list of "EXCEPTIONS TO SPECIFICATIONS" shall be so numbered as to correspond to the reference number of that item in these specifications for the ease of comparison.
- 2.4. Section 33 of these specifications contains a "Compliance with Specification Certification Form". This form must be filled out, signed, and included with bidders proposal. Failure to do so shall constitute cause for rejection of the bid.
- 2.5. The Town of Scarborough's specifications are the final authority and unless written exception is taken, it is assumed that these specifications have been complied with in total. Any errors or omissions shall be the responsibility of the bidder.

### **3. Manufacturer's Qualifications**

- 3.1. The bidder must furnish satisfactory proof to the Town of Scarborough that they have adequate facilities, equipment, financial resources, and a capable work force to design and manufacture the apparatus in accordance with these specifications and meet the delivery date agreed upon between the Town and the manufacturer.
- 3.2. Bidders must further establish their permanency in the industry so as to guarantee the Town a source of supply for replacement parts for any and all components used in the manufacture of the apparatus.
- 3.3. The bidder shall state the location of the factory approved service agency nearest to the Town of Scarborough and shall furnish satisfactory proof of the capability of such service agency to provide replacement parts and service within an acceptable period of time. The facility must be staffed by full time personnel who are factory trained and EVT certified in the operation and repair of the Heavy Rescue apparatus, including all components, with full authorization of the manufacturer. The maintenance facility shall maintain a complete inventory of parts, body components, electrical items, fire apparatus hardware, etc., and shall offer on-site services, body fabrication, collision repair, and a paint shop.
- 3.4. Due to the highly specialized nature of fire apparatus repair, emergency vehicle technicians employed by the maintenance facility shall be in conformance with NFPA standards 1915 and 1071. The facility shall employ full time E.V.T. certified technicians including a minimum of one (1) technician certified as a "Master Mechanic" (having amassed every EVT certification). Proof of current certification shall be supplied with the bid.
- 3.5. The bidder shall clearly state the warranty provided against defects in material and workmanship for all parts and components of the proposed apparatus. The warranties for all parts and components shall be provided by the apparatus manufacturer. The Scarborough Fire Department intends to deal with a single source contact for all warrantee issues. If a manufacturer chooses to use a third party chassis in the construction of this apparatus that manufacturer shall assume and provide warrantee repairs as if it was their own chassis.

#### **4. Bidding Instructions**

- 4.1. This bid is to furnish one (1) Heavy Rescue apparatus. The net cost should be clearly explained including any discounts. The Town of Scarborough is a municipal government and is exempt from all Federal and State taxes. Each bidder shall submit only one (1) bid per vehicle.
  
- 4.2. Each bidder shall submit with their bid the following:
  - 4.2.1. Location of the factory where the apparatus will be built.
  - 4.2.2. Two full sets of the specifications for the proposed vehicle including sufficient cuts, drawings, photographs, sketches or other data that will completely describe the apparatus.
  - 4.2.3. Two complete lists of major component parts of the vehicle and their parts and identification numbers. (successful bidder only)
  - 4.2.4. Two copies each of the certified torque and horsepower curves of the proposed engine.
  - 4.2.5. Photographs of similar units manufactured by the bidding company, showing views from the front, rear, sides, each quarter, and from the top of the vehicle.
  - 4.2.6. Accurate statements as to the weight, wheel base, vehicle dimensions, and the gear ratios between the engine and driving wheels for each position of the gear selector including top governed road speed.
  - 4.2.7. Properly certified data from the chassis manufacturer covering the rated G.V.W., axle ratings, frame dimensions, tensile strength of the frame components, and R.B.M. values.
  - 4.2.8. A signed certificate shall be included with the bid from a certified engineer that the cab & chassis, engine, transmission, drive shaft, and axles are of compatible design and appropriate for fire service application.
  - 4.2.9. Request for bid withdrawals must be made by certified mail prior to the time fixed for bid opening. Negligence on the part of the bidder in preparing the bid confers no right for withdrawal after bids have been opened.
  - 4.2.10. Bids shall be enclosed in a sealed envelope endorsed on the outside with " Bid for Heavy Rescue Apparatus" and the name of the bidding company noted thereon. The bid shall be delivered at the time and place noted on the invitation to bidders (see Page one).
  - 4.2.11. Failure to comply with all conditions of these specifications shall be reasonable cause for rejection of any bid.

#### 4.3. Requirements for Non-Collusive Bidding Certification:

- 4.3.1. No bid will be considered, nor will any award be made, to any bidder who has not included in their bid a certification statement of non-collusion under penalty of perjury. If in any case the bidder cannot make such certification he shall so state and shall furnish with the bid a signed statement which sets forth in detail the reason therefore.
- 4.3.2. If such non-collusion bidding certification has not been made by the bidder, the bid shall not be considered for award, nor shall any award be made, unless purchaser determines that disclosure was not made for the purpose of restricting competition.
- 4.3.3. The fact that a bidder: has published price lists, rates, or tariffs covering the item being procured, or has informed prospective customer of proposed or impending publication of new or revised price list of such items, or has sold the same items to other customers at the same prices being bid, does not constitute disclosure, without more of a disclosure within the meaning of the certification of non-collusion. Any bid containing a corporate bidder's certification to the statement of non-collusion shall be deemed to have been authorized by the board of directors of the bidder and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certification of non-collusion as the act and deed of the corporation.
- 4.4. The successful bidder must submit three (3) D size (24" x 36") scaled blueprints exactly to these specifications to 1/16" scale, prior to construction.
- 4.5. Each bid must be accompanied by a bid bond in the penal amount of ten percent of the maximum amount of the bid, to assure the purchaser of adherence of the bidder to his bid, the execution of the contract, and the furnishing of a performance bond if his bid is accepted.
- 4.6. At the time of contract signing, the bidder shall supply to the purchaser a performance bond in an amount equal to one hundred percent of the contract price furnished by a surety or bonding company licensed to do business in the State of Maine and satisfactory to the purchaser. Such performance bond is to guarantee the bidder's ability to deliver the equipment for which it has contracted between the time of the contract execution and the subsequent acceptance by the purchaser. At the time of the purchaser's acceptance of the apparatus, the bidder may cancel, or cause to be canceled the performance bond. If the bidder to whom the contract is awarded refuses, neglects to execute, or fails to furnish the required one hundred percent performance bond within thirty (30) days after notice to him of the award or by the date of the contract signing (whichever occurs later), the amount of his deposit shall be forfeited and shall be retained by the purchaser as liquidated damages. In addition to the one hundred percent performance bond, the bidder shall also be liable for, and agrees to pay the purchaser, on demand, the difference between the price bid by him and the price for which the contract shall be subsequently relet, together with the cost of reletting, if any, less the amount of the deposit provided. However, in no event shall the purchaser recover any amount in excess of the costs incurred by it for such reletting. No plea of mistake in such accepted bid shall be available to the bidder for the recovery of his deposit or as a defense to any action based upon such accepted bid.

- 4.7. A current statement of financial condition and Dunn & Bradstreet rating is required to be included in the bid. The past and present financial condition of the bidder will be seriously considered during bid evaluation
- 4.8. Due to the high cost of replacement of this apparatus, and for the protection of the Town of Scarborough, the manufacturer must provide proof of liability insurance in an amount of at least \$ 5,000,000.00.

## **5. Delivery**

- 5.1. The manufacturer shall specify the number of working days after award of the contract for construction and delivery. A one hundred dollar (\$100.00) per day penalty fee will be charged for every working day beyond the stated delivery time. The vendor shall state any savings if this penalty is removed from the specifications
- 5.2. The apparatus shall be delivered to Scarborough, Maine under its own power to assure adequate break-in while under warranty. A qualified engineer shall be sent to Scarborough to train the members on the apparatus. The engineer shall remain in Scarborough for a minimum of two days (one of which to be a Saturday) to conduct road tests, stability tests, operational tests, and to instruct fire department personnel in operation and maintenance of the apparatus to the satisfaction of the Fire Chief. This shall be a full instructional program including both classroom and practical or hands-on training including operation of all systems and components of the apparatus.

## **6. Contract Award**

- 6.1. The Town of Scarborough reserves the right to reject any or all bids and to accept the bid considered to be in the best interest of the Town of Scarborough. The Town also reserves the right to negotiate a purchase price higher or lower with any of the bidders.
- 6.2. Within thirty (30) days following the awarding of the contract, the successful bidder shall arrange, at his expense, for one (1) pre-construction trip to the factory by four officials of the Town of Scarborough Fire Department. This trip shall involve a conference with a certified design engineer and salesman to confer with members of the Scarborough Fire Department Truck Committee on all details of the specifications, to assure that both parties to the contract are in complete agreement on all phases of construction and design of the apparatus. Said engineer shall provide such technical and engineering data as may be required to accomplish this task. The timing of trip shall be scheduled with the successful bidder. The cost of transportation, food, and lodging shall be borne by the bidder. A description of this trip is to be included in the proposal and the cost shall be included in the net price of the apparatus. This trip is not an option and shall not be listed as such.

- 6.3. The bidder shall arrange, at his expense, for one (1) final inspection trip to the factory by four officials of the Town of Scarborough Fire Department. The timing of this trip shall be scheduled with the successful bidder to occur when the apparatus is complete and in the final quality control review process. The cost of transportation, food, and lodging shall be borne by the bidder. A description of this trip is to be included in the proposal and the cost shall be included in the net price of the apparatus. This trip is not an option and shall not be listed as such.

## **7. Acceptance Authority**

- 7.1. The Fire Chief and the Scarborough Fire Department Truck Committee or their designated representative shall be the acceptance authority. Acceptance shall be made following a complete inspection test in the Town of Scarborough for compliance with the specifications.
- 7.2. The acceptance will not be made until successful completion of all acceptance tests and requirements detailed herein; and the submission of all data required of the manufacturer under the latest edition of the N.F.P.A. #1901, National Board of Underwriters, and other such requirements that the Town of Scarborough has requested from the successful bidder. All the appropriate N.F.P.A., and D.O.T. standards applicable must be in compliance upon delivery of the apparatus before acceptance can be made.
- 7.3. Responsibility for the apparatus and equipment will remain with the manufacturer until the satisfactory completion of acceptance tests and formal acceptance by the Town of Scarborough.

## 8. General Requirements

- 8.1. The apparatus with all appliances new, complete, and ready for operation shall be furnished under these specifications and shall meet all requirements herein.
- 8.2. The apparatus, and all major components, shall be manufactured in the United States. Where these specifications indicate a specific brand name, model number, dimension, or capacity, the same shall be supplied. These items were selected for their reliability and availability of replacement on a local basis. Any deviation must be clearly listed under variance to specifications ( See Section 2 ).
- 8.3. All parts and components must be new and the bidder shall furnish a complete job-ready apparatus that shall conform in strength, quality, and workmanship to what is provided by the commercial manufacturing industry. The Town will not accept quotations on equipment of a model number covering smaller equipment or component parts that have been built up in various ways to meet a specific specification.
- 8.4. All items appearing in the bidder's regular published specifications shall be included in the bidder's proposal. The following specifications shall be the minimum requirements and the equipment bid on shall be the manufacturer's latest model and design.
- 8.5. If these specifications either in whole or in part do not meet all Federal and State D.O.T. regulatory compliance and safety requirements set forth by the Occupational Health Administration (OSHA), it shall be the responsibility of the successful bidder to bring specified unit to compliance prior to award of bid. It is further intended that the latest edition of N.F.P.A. # 1901 shall apply in total unless otherwise specified.
- 8.6. Axle and suspension components listed in these specifications shall be considered minimum. If components of higher capacity are required, it shall be the responsibility of the bidder to provide them. Weight distribution shall not load the vehicle in such a manner as to exceed any individual axle rating, spring or spring hanger rating, or tire and wheel rating. Axles are to carry weight distributions as per S.A.E. axle loading recommendations.
- 8.7. There shall be, within 150 miles, an authorized repair service center which shall maintain a stock of spare parts for any make of equipment that a bidder offers in this proposal.
- 8.8. Should the bidder find any discrepancies, omissions, conflicts, or be in doubt as to the meaning of any section of these specifications, the bidder shall request an interpretation or clarification in writing from the purchaser no later than five (5) days prior to the date of the bid opening. Proper interpretation or the making of any necessary inquiry shall be the responsibility of the bidder. Oral responses and/or interpretations will not be binding on the purchaser.

- 8.9. The delivered apparatus shall have a certified G.V.R.W. weight plate applied to the vehicle to assure the Apparatus meets all laws pertaining to the weight carrying capacity of the vehicle.
- 8.10. The manufacturer must have a sales representative located within a four hour drive of the purchaser to coordinate the contract, delivery, and service of the apparatus.
- 8.11. The manufacturer must supply, at the time of delivery, two complete and detailed operation, service and maintenance manuals on CD-ROMs. The electronic manuals shall include the following information:
- Operating instructions, descriptions, specifications, and ratings for the chassis, installed components, and auxiliary systems.
  - Warnings and cautions pertaining to the operation and maintenance of the heavy rescue apparatus and all component systems.
  - Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
  - Instructions regarding the frequency and procedure for recommended maintenance.
  - Maintenance instructions for the repair and replacement of installed components.
  - Parts listing with descriptions and illustrations for identification.
  - Warranty descriptions and coverage.
- 8.12. The manufacturer shall list all recommended engine, hydraulic, and transmission oils, and other lubrication required by weight.
- 8.13. In the event the apparatus fails to meet the test requirements of these specifications on first trials, second trials may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive, and failure to comply with these requirements shall be cause for rejection. Failure to make such changes as the purchaser may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the bidder to make such changes shall also be cause for rejection.
- 8.14. Permission to keep or store apparatus in any building owned or occupied by the purchaser during the above specified period shall not constitute acceptance of the apparatus.
- 8.15. The manufacturer shall assure that welding shall not be employed in the assembly of the apparatus in a manner that will prevent the ready removal of any component part for service or repair.
- 8.16. The apparatus shall be designed and constructed so that all equipment, crew, and items necessary for the design purpose of the apparatus, can be carried without overloading the apparatus.

- 8.17. In as much as the apparatus will be subject to emergency service for a period of thirty (30) years, the manufacturer must certify the following:
- a) Parts and service for all components shall be available for thirty (30) years.
  - b) The unit proposed is not a prototype, and is of an established model and design.

## **9. Payment**

- 9.1. The Town of Scarborough agrees to pay the total sum of the contract price at the time of acceptance as outlined in Section 7.1, and upon receipt of a bill for all items covered under the purchase agreement. Bidders should take into account any discounts and time allowances in accordance with the above policy. Bidders should also quote a price exclusive of all federal, state, and local taxes.
- 9.2. Failure to complete the project that is the subject of this bid within the time constraints and quality standards set forth in the bid specifications shall create a right in the Town to the following cumulative remedies:
- a) Termination of the award
  - b) Reimbursement of all costs associated with awarding of the bid to the next highest bidder.
  - c) Payment of any damages to the Town caused by the delay, including any increase in costs associated with selecting the next available bidder on the project.
  - d) If there is no additional available bidder on the project, payment to the Town of all costs associated with re-bidding the project.
  - e) Any other legal remedies available under Maine law for breach of a contractual agreement.
- 9.3. If, for any reason, the Scarborough Fire Department Truck Committee or Fire Chief find any deficiencies during the acceptance testing and inspection of the apparatus, an amount of money sufficient to correct said deficiencies shall be withheld from the payment amount until such items are corrected to the satisfaction of the above mentioned parties.
- 9.4. Prepayment Option. The bidder may, as a bid option, include a prepayment discount for payment of a percentage of the purchase price at the time of contract signing. This option, and the associated discount, should be clearly noted in the bid documents and the acceptance of such option is at the sole discretion of the Town of Scarborough.

## 10. Cab

- 10.1. The apparatus cab shall be constructed of aluminum or stainless steel and be the latest four door, tilt cab design, enclosed crew style available with seating for a minimum of eight (8) personnel. The models Pierce Dash, Emergency One Cyclone II, Ferrara Inferno, Spartan Gladiator, KME Predator, or equivalent, would be acceptable upon a complete description.
- 10.2. The rear portion of the cab roof shall be raised 10" to provide as much head room as possible. The front of the vista hood shall be sloped at 45 degrees from vertical. The slope shall begin slightly in front of the centerline of the front axle to leave room for warning lights and the air conditioning condenser in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on front, side, and rear unless otherwise specified. The raised cab roof shall be designed and reinforced to accommodate the light tower as specified in section 28.13.
- 10.3. The rear doors shall have the largest possible vertical opening for improved ingress/egress characteristics. The door shall be equipped with a dual striker bolt system.
- 10.4. The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements.
  - 10.4.1. Mounting points shall consist of two (2) forward-pivoting points, - one on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, - one each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one on each side.
  - 10.4.2. An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.
  - 10.4.3. Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.
  - 10.4.4. The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.
  - 10.4.5. The entire cab shall be tilted through a 40-degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

- 10.4.6. In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.
- 10.5. There shall be one sun visor installed on each side of the cab.
- 10.6. There shall be two variable speed fans for added ventilation and defrosting of the windshields.
- 10.7. The windshield shall be constructed of automotive-type, tinted safety glass.
- 10.8. Door glass shall be automotive safety plate.
- 10.9. The cab dash shall be constructed with a low glare finish, slanted forward, incorporating the following features:
- All instruments in removable panels on each side of the steering column, directly visible to the driver
  - Heavy duty marine-type gauges
  - The area under the dash must be clear and free of any obstruction to maximize passenger leg room. All gauges and instruments shall be in a convenient location and properly labeled and lighted. The cab shall include as minimum the following switches, gauges and instruments:
    - Headlamp switch
    - Ignition control with indicator light above same
    - Voltmeter
    - Heater/defroster control, high output heater
    - Tachometer
    - Starter buttons
    - Fuel gauge
    - Engine hour meter
    - Water temperature gauge and high temperature warning light
    - Oil pressure gauge with low oil warning light and audible buzzer
    - Speedometer with road miles odometer
    - Windshield wiper control with intermittent feature and windshield washer
    - Low air pressure gauge and light with audible buzzer
- 10.10. There shall be an orange flashing light, one inch by three inches, plainly mounted to signify open compartment and crew doors. A warning buzzer shall also be included to signify an open door condition.
- 10.11. Emergency warning lights shall be controlled by a Whelen MPC01 control head. (see section 29 for additional information on warning signals )

- 10.12. Turn signal indicator lights shall be located to the right and left of the steering column, and a high beam indicator light in front of operator.
- 10.13. Cab doors shall have door checks, grab handles, and double catch door lock controls. All grab handles shall be installed with adequate clearances to be used with a gloved hand. Cab door shall either stay open or closed. There shall be rain drip moldings over each of the four doors. Non-corrosive inner door components shall be required.
- 10.14. There shall be reflective stop signs on each cab door in compliance with all NFPA requirements.
- 10.15. Cab Door Hinges shall have insulator material between aluminum door and hinge material to prevent corrosion caused by dissimilar metals.
- 10.16. All seats, except the driver and flip down seats, shall be 911 ABTS seats, or equivalent, with 4.5 SCBA bottle brackets and attached retractable 3-point, bright orange or red shoulder and seat belts.
- 10.17. The driver's seat shall be a Bostrom type air adjustable, self compensating seat with retractable 3-point bright orange or red shoulder and seat belt.
- 10.18. There shall be two flip down type seats on the rear wall of the cab facing forward with attached retractable 3-point, bright orange or red shoulder and seat belts. These seats shall be mounted to provide seating for a total of 8 in the cab without interfering with access or egress from the cab area.
- 10.19. Under all other fixed seats there shall be an aluminum diamondette compartment used for storage.
- 10.20. Heater and defroster shall be installed in the cab with indirect heating and defrosting features. Heater capacity shall be of the largest capacity possible.
- 10.21. The entire cab shall be equipped with air conditioning. The air conditioning unit shall have a minimum capacity of 45,000 BTU and provide maximum cooling.
- 10.22. A headliner and noise suppression shall be installed in the entire cab section to minimize engine and road noise. (Per NFPA 1500 and 1901)

- 10.23. Two (2) Lang Mekra 300 Aero Series Technology mirrors shall be provided, one driver's and one officer's side. The mirrors shall be chrome plated on the main head, be remote controlled on the drivers side with a four way power system and be heated. There shall be a temperature display in the driver's side glass, LED marker lights with bezel on the main head, and LED arrow lights in the mirror glass. The main flat glass shall provide 120 square inches of viewable surface area. There shall be separate heads for the driver's and officer's side housing convex glass and provide 56 square inches of viewing surface.
- 10.24. Two (2) Grover model #1501, chrome air horns shall be recessed, one on each side, in the front bumper. The horns are to be piped to the auxiliary tank (as described in 15.2) utilizing 3/8 inch tubing. A pressure protection valve shall be installed in-line to prevent loss of all air. The horns shall be operated by a hand pull cord from either the driver or officers seat.
- 10.25. One chrome plated, flush mounted, electronic siren and PA speaker shall be installed in the front bumper.
- 10.26. The cab area shall meet NFPA standards for noise suppression.
- 10.27. Full size mud flaps with anti-sail brackets shall be installed on all fenders. The wheel liners shall be of smooth construction without any angles to catch debris.
- 10.28. A chrome front bumper with 10" diamond plate extension suitable for standing to wash and clean the vehicle shall be included. A three (3") inch aluminum diamondette stone shield shall be installed across the cab. It shall be part of the bumper and shall be spaced 1/2" away from the cab for proper water drainage.
- 10.29. There shall be a second, Class 1 brand, digital speedometer mounted on the officers side of the cab so the officer can easily view the speed of the vehicle. The display shall be a rectangular shaped, weatherproof, digital display with super-bright digits at least 1/2" high. The display shall be capable of showing speed in MPH.
- 10.30. A fold down retractable tray shall be provided for the officer's position to act as a writing surface or laptop computer rest. The tray shall be adjustable both fore and aft as well as up and down and conform to all applicable NFPA specifications.
- 10.31. A rear-mounted camera shall be installed on the rear of the apparatus that provides the driver a clear view of the immediate area to the rear of the unit. A 5" LCD color display visor-mounted monitor shall be installed and the system shall be activated each time the shift selector is placed in the reverse mode. A stand-by/manually switch shall be located on the driver's console to allow the system to be activated either as described above or manually at any time. The back up camera shall have an audio feature to capture sounds from the rear of the apparatus.

- 10.32. There shall be no obstructions in the floor area of the cab. The cab floor shall be covered with a 4 ply heavy duty rubber mat finish for sound deadening, insulation, and ease of cleaning.
- 10.33. The engine cover shall be as small as possible to provide maximum room for the driver and officer. It shall be properly insulated for maximum noise suppression and include an access door to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab.
- 10.34. The unit shall be equipped with an AM/FM stereo with weatherband. Two radio speakers shall be supplied mounted in padding adjacent to driver and officer's seat and two in the rear crew area.
- 10.35. No radios or communication equipment shall be provided with the vehicle. A Coaxial Antenna lead shall be pre-wired from a suitable location on the roof to the location of the two-way communication radio behind the drivers seat. The antenna lead in the roof shall include a PL 259 connector soldered to end of cable for install of 2 way communication radio antenna.
- 10.36. Two (2) wheel chocks, properly sized for this apparatus, shall be provided and installed with horizontal mounting brackets for each and installed under the drivers side body skirt behind the rear wheel.
- 10.37. The apparatus shall be equipped with a Fire Com brand intercom system wired to each of the eight riding positions.
  - 10.37.1. The headsets for the 6 passengers in the rear shall be set to operate on the intercom in a voice activated mode without having to push to talk. The passenger headsets shall not be wired to transmit over the radio, but they shall be able to monitor radio transmissions.
  - 10.37.2. The drivers, and officers positions shall have headsets that are set to operate on the intercom in a voice activated mode without having to push to talk. A push to talk switch mounted in a convenient position near each seat, or on the headset, and will be included to activate their headsets to talk on the radio.
  - 10.37.3. The headsets shall be designed for fire apparatus use and to fit comfortably under a helmet. They shall also be designed for maximum hearing protection, and have a volume control knob on the headset.

## **11. Cooling System**

- 11.1. The cooling system is to be a pressurized type to provide proper cooling under atmospheric temperature to 120 degrees Fahrenheit without overheating or loss of coolant. The system is to include a thermostat with automatic bypass for quick warm-up.
- 11.2. Adequate and readily accessible drain cocks shall be installed at the lowest point of the cooling system and at other such points as are necessary to completely remove water from the system. These drains shall be designed so as not to open accidentally due to vibration.
- 11.3. The radiator shall be made of suitable material and of sufficient capacity to properly cool the engine during extended operation. The radiator shall be mounted so as not to develop leaks due to ordinary running and operation. The construction shall be such that the radiator will not corrode or readily clog and shall be of material suited for this type of equipment. Aluminum or steel shall not be acceptable radiator material. Radiator frontal area shall be a minimum of 1,000 square inches.
- 11.4. Provisions shall be made to visually check coolant level without having to raise the cab. This may be accomplished either through the engine dog house or from the grill area of the apparatus. A description and photograph of how this will be accomplished shall be included with the bid documents.

## **12. Exhaust System**

- 12.1. Mufflers shall be provided and shall be constructed so as not to lower the efficiency of the engine. The muffler shall be made of aluminized or stainless steel. The tail pipe(s) shall terminate as close to the curb side rear wheels as possible.
- 12.2. The exhaust pipe shall be modified to accept a PlymoVent suction boot.

### **13. Fuel System**

- 13.1. A stainless steel or aluminum fuel tank of not less than sixty-five (65) gallon capacity properly reinforced and baffled must be furnished. Tank seams are to be welded. An electric type fuel gauge mounted on the instrument panel is to be provided. There shall be a drain provided in the tank bottom.
- 13.2. The fuel fill opening shall be located on the drivers side and shall be covered by a hinged door with latch. Fuel fill opening shall be at least 2 ¼” in diameter and shall be vented to provide for rapid filling.
- 13.3. The fuel tank fill shall be labeled " Diesel Fuel Only."
- 13.4. A primary and secondary fuel filter shall be furnished and installed as recommended by the engine manufacturer, and both filters are to be located by the engine.
- 13.5. A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve location shall be as specified.

### **14. Engine and Transmission**

- 14.1. The engine shall be a Detroit Diesel Series 60, 315 hp minimum, or approved equivalent. The engine shall meet all DOT and EPA criteria regarding diesel engines.
- 14.2. The transmission shall be an Allison model 3000 EVS transmission. The transmission control shall be equipped with a "mode" switch to control road speed.

Note: Due to standardization of our fleet and the dependability of this power plant / transmission combination the base bid must include this engine and transmission combination with no exceptions.

An alternative bid in addition to the base bid for an equivalent engine coupled with a compatible Allison automatic transmission may be submitted providing it has been engineered and determined suitable for the proposed apparatus. Detailed supporting documentation must be included if the bidder intends to submit an alternate engine option.

## **15. Brakes**

- 15.1. The service brakes shall be air operated. All component parts shall be Bendix - Westinghouse, with a water cooled, engine lubricated, gear driven piston compressor with a minimum of 16.1 C.F.M.
- 15.2. In addition to the regular reservoir, an auxiliary reservoir for rapid build-up shall be provided and installed with regulator valve, check valve, and bypass.
- 15.3. The service brakes shall be of the latest type and design. Manual drains shall be provided.
- 15.4. The service brake pedal shall be of the treadle type.
- 15.5. The vehicle shall be equipped with Maxi-brakes.
- 15.6. There shall be a Bendix model # AD-IS Air Dryer system mounted in a suitable location for ease of maintenance.
- 15.7. The front and rear brakes shall be of the maximum size available for the axle size, and be of S-Cam design with Q-Plus shoes.
- 15.8. The apparatus shall be equipped with an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 standard. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration. The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.
- 15.9. A Jacobs engine braking system shall be provided, with a high/low setting and on/off switch.

## **16. Steering**

16.1. The apparatus shall have full power steering at idle.

## **17. Frame**

- 17.1. The frame must be special fire apparatus type of sufficient strength to withstand the heavy strains of the fire service. Frame side rails and cross members shall be of 3/8 inch stock, high strength, low alloy steel. Frame side members shall not be less than 10 1/4 inch depth at center section with a minimum yield strength of 110,000 P.S.I. with lifetime guarantee.
- 17.2. The bidder shall state the frame section modulus and resistance to bending movement in the bid documents.
- 17.3. Four tow eyes shall be attached to the main rails of the frame, two in front, and two rear, all accessible for a flat tow. Exact specifications must be provided at time of bid including sufficient drawings to adequately show the tow eyes.
- 17.4. The chassis frame shall have a wheel alignment in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

## **18. Suspension**

- 18.1. The springs shall be built strong enough to carry the rated load plus men and equipment without due deflection and shall be flexible enough to carry the load easily and without damage under road conditions which will be encountered in the intended service area.
- 18.2. The springs shall be of chrome manganese steel and a minimum of three inches wide, and shall be assembled so the shackle pins are easily greased.
- 18.3. Double acting shock absorbers shall be provided on the front and rear axles.
- 18.4. The apparatus chassis, suspension, and brake system shall be lubricated by an auto lubrication system that automatically greases all serviceable fittings. Grease fittings shall be installed and connected to the automatic lubrication system in all areas where grease is required. Threaded plugs that require the buyer to install grease fittings, or fittings not connected to the auto lube system will not be acceptable.

## **19. Dimensions**

- 19.1. A maximum turning radius of 25 feet right or left shall be allowed. The body of the apparatus shall be a minimum of 18' long and shall be engineered and designed to adequately hold both the new and purchaser supplied equipment noted in these specifications with sufficient room for future growth and space needs. The wheel base shall be as short as possible to meet the space needs of the proposed apparatus. Bidders shall explain this issue in detail in the bid documents.

## **20. Front Axle**

- 20.1. The front axle shall be a minimum of 16,000 pounds G.V.W.

## **21. Rear Axle**

- 21.1. The rear axle shall be a minimum of 27,000 pounds G.V.W. with helper springs. The ratio of the rear end shall be determined by the manufacturer so that the maximum road speed shall be 70 mph. with the transmission mode switch in position 2. The transmission shall be programmed to allow a maximum speed of 50 mph in the normal operating mode.

## **22. Wheels and Tires**

- 22.1. The apparatus shall be equipped with polished aluminum disc wheels front and rear. These wheels are to be forged from one-piece corrosion resistant aluminum alloy.
- 22.2. The tires shall be Michelin or Goodyear brand, properly balanced, radial, of size, ply, and load range for the rated G.V.W. of the vehicle. Front tires shall be highway type, rear to be mud and snow type.
- 22.3. A mounted spare front wheel and tire, and a mounted spare rear wheel and tire shall be included with the truck when delivered.
- 22.4. There shall be an automatic "On Spot" brand drop down chain traction system installed on both inside rear wheels.

## 23. Body and Compartments

- 23.1. The body shall be fabricated of aluminum or stainless steel, with all welded seam construction. The construction design and gauge of materials shall be clearly described in the bid. The body shall be the widest style available for maximum compartment depth.
- 23.2. Each compartment shall include sufficient lights for night time operations. These lights shall automatically operate upon opening of the compartment door. There shall also be a master override switch on the dash for these lights.
- 23.3. A drip molding shall be installed above all door openings and run the full length of all compartments.
- 23.4. The area around the rear wheel area normally reserved for SCBA bottle storage, shall be used for fire extinguisher storage. Three (3) fire extinguisher compartments shall be provided at the wheel well area of the rear axle (two on the passenger side, and one on the drivers side). These storage compartments shall be secured by a cast aluminum housing and shall be designed to be as large and deep as possible in the space available to accommodate a variety of fire extinguisher models. The bottles shall be held in place by an aluminum-hinged door casting with a positive catch latch.
- 23.5. All compartments shall have a single, vertical, Dover Nyloy 30 brand, roll-up style compartment doors, or equivalent. The roll up doors shall have an anodized aluminum finish.
  - 23.5.1. The door lath sections shall be double faced and made of anodized aluminum construction. The lath sections are to be a driven ball and socket design and must be individually replaceable without complete disassembly of the shutter door.
  - 23.5.2. Between each lath at the pivoting joint shall be a fitted flexible seal for weather resistance. They must allow the shutter to operate in extreme temperature ranging from 212 degrees Fahrenheit to -40 degrees Fahrenheit.
  - 23.5.3. A synthetic rubber side, top, and bottom seal shall be provided to resist ingress of dirt and weather. All hinges, barrel clips, and end pieces shall be of type 6 nylon. End pieces will be riveted to each lath. Hardened plastic is not acceptable.
  - 23.5.4. The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device. A 1¾" wide extruded aluminum ledge with tubular edge, shall be supplied over the lift bar for additional area to aid in closing the shutter door.
  - 23.5.5. A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

- 23.5.6. Each roll-up door and vertical side trim shall have a anodized aluminum finish.
- 23.5.7. A life time parts warranty shall be provided by the manufacturer.
- 23.6. Compartment floors shall have clear, flat metal surfaces. There shall be no lip obstruction at door sills.
- 23.7. All cabinet floors, sliding trays, and shelves shall be provided with an interlocking mat system.
- 23.8. There shall be stamped louvers in the rear and or side of all compartments not visible from the outside.
- 23.9. Compartments shall be gasketed and water resistant. Each compartment shall have 3/8" drain holes arranged so water will not come up into the compartment.
- 23.10. The body shall have a body side protection rubrail along the length of the body on each side and at the rear. The rubrail shall be constructed of minimum 3/16" thick anodized aluminum 6463T6 extrusion. The rubrail shall be a minimum of 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side.
- 23.11. The rubrail shall be of a C-channel design to allow marker and warning lights to be recessed inside for protection. The top surface of the rubrail shall have a minimum of 5 serration's raised .1" high with cross grooves to provide a slip resistant edge for the rear step and running boards. The rubrail shall be spaced away from the body using 3/16" nylon spacers. The ends of each section shall be provided with a rounded corner piece. The area inside the rubrail C-channel shall be inset with a white reflective material for increased side and rear visibility.

## 24. Compartment Layout

Due to the variety of styles and layouts by the various manufacturers we cannot write a specific specification for compartment configuration. Instead we will list the main tools and operational objectives in the sections below to allow the bidder to develop a compartment layout that meets those objectives and includes sufficient space for the tools and equipment listed plus future growth. Where a specific tool or model appliance is listed the manufacturer shall design, furnish, and install the mounting brackets for both the equipment provided by the vendor and the purchaser supplied equipment where indicated. A detailed description and drawings of the proposed compartment layout shall be included with the bid. Final configurations and details of the compartment layout and tool mounting shall be negotiated prior to award of a contract.

### 24.1. Hydraulic Tools

The objective is to be able to run both a hydraulic cutter and spreader tool simultaneously off each side of the apparatus.

- 24.1.1. The layout shall include the ability to operate one, purchaser supplied, Holmatro model # 3050-NCT hydraulic cutter and one, purchaser supplied, Holmatro model # 2007-UL spreader off the passenger side of the apparatus.
- 24.1.2. The layout shall include the ability to operate one, purchaser supplied, Holmatro model #2001-UL hydraulic cutter and one, purchaser supplied, Holmatro model # 2003-UL spreader off the driver side of the apparatus.
- 24.1.3. Two Holmatro model # DPU60E 220 volt Duo pumps shall be furnished and installed (one each side) in the ceiling of the compartments where these tools will be stored.
- 24.1.4. A total of four (4) hydraulic hose reels with electric re-wind and appropriate hose rollers and guides shall be furnished and mounted in the ceiling of these compartments (two each side). These Holmatro hydraulic hoses shall be four different colors for ease of identification, and shall be the proper model for the tools that are operating. The capacity of each reel shall be a minimum of 100’.
- 24.1.5. The purchaser will supply the following hydraulic tools that shall be mounted close to the items above:
  - 24.1.5.1. (1) Holmatro Combi Tool Model # 2002-U
  - 24.1.5.2. (1) Holmatro 2 place power head Model # DPU60PH
  - 24.1.5.3. (1) Holmatro manual foot pump Model # FTW 1800 BU
  - 24.1.5.4. (1) Holmatro brake pedal cutter Model # HTW 300 A
  - 24.1.5.5. Holmatro hydraulic rams, 1 ea. Model # 2004 UL, 1 ea. Model # 2006 U, and 2 ea. Model # 2005 UL

## 24.2. Cascade System

The details of the Cascade system can be found in Section 31. Compartment space should be provided to contain the following components:

- 24.2.1. One (1) Scott RevolveAir breathing air fill station to be furnished and installed on the drivers side.
- 24.2.2. One Sierra Boost Pump for fill station shall be supplied and mounted on the fill station for maximum use of the breathing air contained in the cascade system.
- 24.2.3. SCBA bottle storage rack for a minimum of ten (10), purchaser supplied, 4500 psi, 30 minute bottles. (Please provide storage for as many bottles as possible to fit in this space.)
- 24.2.4. A four (4) bottle, 509 cu. ft., ASME, 6,000 psi cascade storage system shall be furnished and mounted in the bottom of the upper walkway compartments on the top of the apparatus (two each side).

## 24.3. Utility Air & Airbags

- 24.3.1. An airbag storage rack shall be included to hold the following purchaser supplied Paratech air bags and auxiliary air bag equipment:

- 24.3.1.1. 4 ea. Model # KPI-32
- 24.3.1.2. 1 ea. Model #KPI-5
- 24.3.1.3. 1 ea. Model #KPI-3
- 24.3.1.4. 1 ea. Model #KPI-1
- 24.3.1.5. 5 ea. 24" x 24' x 3/4" plywood
- 24.3.1.6. 1 ea. 20" x 9 1/2" x 9 1/2" tool box for air bag controls & regulators
- 24.3.1.7. 1 ea. 22" x 22" x 6" canvas bag for air bag hoses

- 24.3.2. Two (2) utility air reels with electric rewind and air hose shall be furnished and installed (one each side of the apparatus in the ceiling). This system shall be plumbed to the chassis air system utilizing high quality Synflex air brake type 1/2" diameter air line. All hoses shall be loomed to prevent damage of the system. The system shall include a pressure protection valve that only allows air to flow from the chassis air system when the chassis reserve tank is above 70 PSI. The utility air system must be completely separate from the chassis air brakes and not modify the vehicle air brakes system. The air reels shall include 140' of 3/8" ID heavy duty utility hose rated at 300 psi. The utility air reels shall include a Milton hose end female connector, a stainless steel roller guide, and 1/4 turn shut off valve.

#### 24.4. Electrical

- 24.4.1. A main 120/240 volt electrical distribution panel shall be furnished and installed.
- 24.4.2. Two (2) utility electric reels with electric re-wind and electrical cord shall be furnished and installed (one each side of the apparatus in the ceiling). Each cord to terminate in one (1) Circle D four outlet junction block with indicator light. (See section 28.11)
- 24.4.3. One hydraulic generator (minimum 35 kw) shall be furnished and installed in one of the upper walkway compartments

#### 24.5. Miscellaneous tool & equipment mounting

- 24.5.1. When designing compartment layouts the use of slide out trays, tool boards, and tip out mounting brackets shall be utilized to provide maximum use of compartment depths and for ease of access for all tools and equipment.
- 24.5.2. One slide out / tip down tray shall be included for mounting purchaser supplied cordless tools, batteries and chargers. Minimum size 36" x 36" with 7" of clearance above.
- 24.5.3. One slide out tray shall be provided in the lower most section of one compartment designed to hold a large tool box (minimum 42" wide x 24" tall x 18" deep). Design of this compartment should include provisions for an upper level sliding tray at or above the chassis frame rails for maximum use of compartment space.
- 24.5.4. Provisions for storage of long tools and equipment shall be made including a purchaser supplied EMS immobilization long board, and two purchaser supplied 12' pike poles.

#### 24.6. Underbody Compartments

- 24.6.1. An under body, below skirt compartment shall be installed forward of the rear wheels on both sides of the apparatus. The compartment shall be fabricated with welded aluminum panels and include a box pan polished aluminum diamond plate door with an interior panel. The interior panel shall conceal the interior door hardware and latching hardware. The door shall close and be latched utilizing a locking bent "D" ring handle, with two dead bolts one on each end of the door. The compartment shall have a 1" flange around the perimeter and be fully gasketed and water resistant. The entire assembly shall be bolted on with ½" grade 8 fasteners, and shall be removable if necessary. The compartment shall include a pull out drawer with approximately the same dimensions as the interior of the compartment. The drawer shall be mounted on 300 pound maximum capacity slides. The dimensions of these compartments shall be as large as feasible while assuring they won't hit any obstructions during normal operations on normal road and driveway grades. The minimum interior storage depth shall be 32". A detailed description and drawing of these compartments shall be submitted with the bid documents.

## 24.7. Upper Walkway Compartments

- 24.7.1. A custom polished aluminum diamond plate compartment shall be installed in the overhead walkway area of the vehicle (one each side). The compartments shall be framed into the roof of the vehicle and not be an add on section or compartment. The compartment box shall be fabricated from .125" polished aluminum diamond plate with the diamond surface facing to the inside. The compartment shall extend above the roof of the vehicle by a minimum of 1", to prevent water infiltration. The door shall be fabricated from .1875" polished aluminum diamond plate with a double pan welded construction. The compartment shall seal on a full perimeter closed cell EPDM rubber gasket. The compartment shall be held open and closed by heavy duty gas spring door supports.
- 24.7.2. An absorbent compartment with a minimum of 300 lbs. of material shall be constructed and installed in a upper walkway compartment. It shall include a chute that terminates through the bottom of a rear compartment to allow dispensing absorbent material into buckets as needed. An electrically actuated dispensing valve for dispensing of absorbent material shall be included.
- 24.7.3. Eight (8) Ziamatic SCBA brackets shall be furnished and mounted in one of the upper walkway compartments to hold 4, purchaser supplied, 60 minute 4,500 psi SCBA packs with 4 spare 60 minute bottles.
- 24.7.4. The upper walkway compartments shall have a removable false floor under which the ASME cascade storage bottles shall be located. This floor shall be reinforced with sufficient structural bracing to allow for storage above.

## 24.8. Rear access stairs & storage compartment

- 24.8.1. There shall be a custom set of access stairs fabricated and installed to access the roof walkway and upper compartments of the vehicle. The stairs shall be fabricated from non-skid stair sections and be welded to a fabricated polished aluminum diamond plate channel. The access stairs shall have a rise to run of approximately 2 to 1. The access stairs shall only partially protrude into the rear compartment area, and minimize any reduction of storage in this area. The access stairs shall be built in as part of the structure of the vehicle. Add on access stairs or ladders are not acceptable. The upper walkway shall be finished with diamond plate on the vertical side walls of the upper compartments and walkway surface. The entire area shall be sealed and waterproof to the compartments below. The stairway shall be fully illuminated by Trucklite 4" rubber flange mounted recessed lights.
- 24.8.2. The area behind the stair assembly shall be accessible either by flip up stair design or compartment door access for utilization of the space under and between the frame rails.

## 24.9. Electric winch

- 24.9.1. A 12 volt electric winch shall be furnished and installed with a minimum capacity of 8,000 lbs. and include a minimum of 100' of 5/16" galvanized aircraft type cable and a replaceable clevis hook. The winch shall have the following features: power in/out, freespooling, mechanical safety brake, and roller fairlead. The winch shall have four Reese style receiver points, one on each side (centrally located) of the apparatus, capable of supporting the full rating of the winch. The receiver points shall be constructed from heavy gauge steel square tubing designed for a slide-in Reese hitch assembly with a 5/8" hitch pin. The assembly shall be integral with the underbody frame assembly. An aluminum receiver plug shall be provided at each receiver location to protect against road dirt and ice buildup.
- 24.9.2. When not in use the winch shall be stored in a custom bracket in the under stair compartment at the rear of the apparatus.
- 24.9.3. A 12 volt power source shall be provided at each receiver location. The wiring to these connections shall be of sufficient size for the winch rating and be run in conduit for protection. The outlet shall be a two prong, jumper cable style exterior plug with a stainless steel spring loaded cover. The electrical load shall be powered directly through the vehicles batteries. A minimum 12' remote control cable with matching two prong quick connect plug shall be provided.
- 24.9.4. Two (2) slip hook style snatch blocks shall be provided and shipped as loose equipment. The snatch blocks shall match the capacity and cable size of the winch.

## 25. Running Boards and Tread Plates

- 25.1. The following surfaces shall be manufactured of heavy duty aluminum diamondette: All walking surfaces shall be of a non-skid design, including running boards, rear step or beaver tail, rear stairway, front and rear cab steps, & risers, etc.
- 25.2. Front and rear cab steps and riser shall as wide as possible and easily accommodate fire fighters in full gear with a minimum step depth of eight inches.
- 25.3. Side running boards shall have a one inch return break for added strength.
- 25.4. An extruded rub rail shall be installed on the outside bottom, full length of the compartment body of the vehicle.

## **26. Hand Rails**

- 26.1. Rails shall be made of 1 ¼” polished ribbed stainless steel.
- 26.2. Each cab door entrance shall have a 12” vertical ribbed grab rail of sufficient depth to be used by a gloved hand.
- 26.3. One horizontal grab rail shall be installed under the window inside each door of sufficient depth to be used by a gloved hand.

## **27. 12 Volt Electrical System**

- 27.1. A Leece-Neville, model A0014962PA, 14 volt, 320 amp. alternator shall be supplied and driven by no less than two belts.
- 27.2. The truck will have a master electrical disconnect switch.
- 27.3. Battery compartments shall be located one on each side of the frame. The batteries shall be contained in a battery box with a polypropylene liner.
- 27.4. Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.
- 27.5. A Kussmal Brand battery charger system shall be provided and installed to allow for shoreline receptacle at the outside rear of the driver's door.
- 27.6. The apparatus wiring shall be numbered, color coded and protected with ample circuit breakers. There shall be no wiring inside or attached to the apparatus chassis. All wiring shall be in vinyl clad fireproof sheathing and properly grommeted.
- 27.7. The apparatus shall incorporate the latest designs in the electrical system with state of the art components to insure that radiated and conducted electromagnetic interference (EMI) and radio frequency interference (RFI) emission are suppressed at the source.
- 27.8. Electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

- 27.9. A 6-place, constantly hot, and 6-place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference. The cab and chassis system shall have a centrally located electrical distribution area.
- 27.10. The following 12 volt lights shall be furnished:
- 27.10.1. Arrow type LED style directional signals, front and rear
  - 27.10.2. Two engine compartment lights, with switches on lights.
  - 27.10.3. Automatic compartment lights with tell-tale light system on dash showing open compartment and crew cab doors.
  - 27.10.4. Automatic LED type backup lights, with audible backup alarm.
  - 27.10.5. High intensity dome lights shall be installed in driver and crew compartments, activated with door opening switches, and manual override switches at each light. The dome light on the passenger side, and at least one in the crew area shall have a red lens for night use.
  - 27.10.6. The apparatus shall have a ground lighting system to adequately illuminate the ground around the entire apparatus. The ground area lights located at each cab door shall be activated automatically when the exit doors are opened. All ground area lights shall be operated with a switch on the cab dash switch panel.
  - 27.10.7. LED style marker lights and reflectors shall be provided as required by Federal and State requirements. All rear step marker lights shall be recessed.
  - 27.10.8. Additional LED style marker lights shall be installed along both sides of the body for increased visibility from intersections.
  - 27.10.9. A 500,000 candlepower, 12 volt, handheld spotlight shall be mounted in the cab near the officer's seat. The light shall be constructed of high-impact plastic.
  - 27.10.10. A Tomar traffic light control transmitter shall be furnished and installed.
  - 27.10.11. Two (2) Havis-Shields Kwik-Raze model 31 Magnafire quartz brow lights shall be furnished and installed above the front windshield on each side of the cab. The heads shall be 70-watt, 12-volt, with metal halide bulbs rated at 6,000 Lumens mounted on series 1500 brow mounts.
  - 27.10.12. Six (6) Whelen, 900 Series 12 volt Halogen 13 degree Opti Scenelights shall be installed two (2) each side of the vehicle, and two (2) on the rear. The flood lights shall include single replaceable Halogen bulbs, and built-in 13 degree internal Optics in each light lens. The flood lights shall include metallized chrome flange housings specifically designed for each light. Cast aluminum housings are unacceptable.

- 27.10.12.1. The 12 volt scene lights shall be controlled by a relay controlled circuit in the drivers console. Controls for each light shall be switched independently.
- 27.10.12.2. The rear flood lights shall automatically activate when the apparatus is placed in reverse.

## **28. 120/240 Volt Electrical System & Generator**

- 28.1. The apparatus shall include a 120/240 volt AC electrical system separate and distinct from the vehicles 12 volt electrical system. The entire system shall be designed and tested to meet the requirements of NFPA 1901 and the National Electrical Code (NEC) where applicable and use the balance of the NEC for general practices and procedures associated with high voltage 120/240 volt AC electrical wiring and devices.
- 28.2. All wiring shall be three (3) conductor 10 GA, 12 GA or 14 GA stranded copper cable as required by the circuit requirements. All conductors shall have 105 degree Celsius rated insulation, tinned conductors and be rated at 600 volt. SO black jacketed type cable is unacceptable. All cable wiring shall be encased in high temperature protective loom where exposed. In any location where the wiring may be exposed to the exterior or underside of the body, it shall be encased in liquid-tite conduit and waterproof junction boxes.
- 28.3. A 20 Amp Kussmaul "Super Auto-Eject" Shoreline Male Motor Base Model 091-55-20-120, shall be installed to the rear of the drivers door. The Shoreline shall be waterproof type with a spring loaded gasketed cover. The Shoreline shall be wired to the junction circuit breaker box located within the power distribution panel compartment. The Shoreline auto-eject solenoid shall be connected to the starter solenoid of the vehicle and only be activated when started. The Shoreline shall be equipped with a matching female connector designed for use with the auto-eject shoreline and shipped loose with the vehicle.
- 28.4. The apparatus shall be equipped with a manual transfer switch. The switch shall provide power from two sources to the vehicle power distribution panel. The input source shall be the onboard generator and the other shall be an external shore power input. The switch shall be rated at 125 amp capacity and shall be a three pole unit. The switch shall be designed for this purpose and include a center off position to prevent arcing. The switch shall be sized to handle the largest output draw.
- 28.5. An Onan direct drive hydraulic generator (minimum 35 kw) shall be furnished and installed in the forward section of one of the upper walkway compartments.
  - 28.5.1. The generator shall be a vehicle driven, power take off, driven unit and be equipped with a voltage regulator.

- 28.5.2. All generator controls shall be located in the drivers console.
- 28.5.3. The generator shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions and testing of the generator shall be as outlined in NFPA 1901. The test shall include operating the generator for two hours at 100% of the rated load. Power source voltage, amps, frequency shall be monitored. The prime mover's oil pressure, water temperature, transmission temperature and power source hydraulic fluid temperature shall be monitored during testing. The results of the test shall be recorded and provided with delivery documentation.
- 28.6. A 120/240 volt circuit breaker panel shall be installed in the vehicle. All circuit breakers which power electrical outlets shall be GFI type. Circuit breakers which power permanent appliances shall be standard type breakers.
- 28.7. The vehicle shall be equipped with four exterior 120 volt, 20 amp electrical outlets. One mounted on each side by the rear wheels, and two located on each side of the rear of the apparatus. The outlets shall be Hubbell type with water resistant covers. The outlets shall have a three prong twist-lock receptacle with a L5-20 NEMA configuration.
- 28.8. All circuit breakers shall be labeled. All interior and exterior outlets shall be provided with labels indicating output amperage, voltage and phase.
- 28.9. Two (2) exterior 240 volt, 30 amp electrical outlets shall be provided for the hydraulic tool power units. The outlets shall be Hubbell type with water resistant covers. The outlets shall have a three prong twist-lock receptacle with a L6-30 NEMA configuration.
- 28.10. One (1) exterior 240 volt, 15 amp electrical outlet shall be provided for the Sierra booster pump. The outlets shall be Hubbell type with water resistant covers. The outlets shall have a three prong twist-lock receptacle with a L6-15 NEMA configuration.
- 28.11. Two (2) Hannay Electric Cable Reel Model ECR 1616-17-18, with four conductor capacity, for 240 volt, shall be installed in the vehicle as listed below. The reel shall include electric rewind motor activated by a push button momentary switch. The switch shall activate a heavy duty 70 amp battery solenoid and include an independent 50 amp circuit breaker for each reel. The reel shall include a full length stainless steel roller guide assembly and a ball stop clamped to the cable. The reel shall include a double pole GFI circuit breaker in the power distribution panel to power the reel and cord assemble.
- 28.11.1. The 240 volt cable reel shall be equipped with 150 feet of Royal EZC, 10 Gauge, 4 conductor cable. The cable shall be safety yellow. The circuit shall have a 30 amp capacity with a 30 amp double pole circuit breaker.

- 28.11.2. A Circle-D four outlet junction box shall be provided. The junction box shall include a light to provide an indication when live power is at the outlets. The junction box shall be attached to the end of the cable on the electric cable reel. Two (2) Circle D model #213 cast aluminum mounting box shall be installed (one each side). The junction box shall include the following outlet Types:
- 28.11.2.1. (2) L5-20, 120 Volt, 20 amp Twist-Lock
  - 28.11.2.2. (1) L6-20, 240 Volt, 20 amp Twist-Lock
  - 28.11.2.3. (1) 5-20, 120 Volt, 20 amp Straight Blade
- 28.12. The apparatus shall be equipped with a 45 Amp Battery Conditioner/Power Supply to charge the vehicle batteries when plugged into the external shoreline. The battery charger shall be a fully automatic controlled taper charger and provide no charge when the batteries are completely charged. The Conditioner shall be a heavy duty, continuous duty, solid state unit.
- 28.13. A Will-Burt Night Scan Model NS-15-9000DT Heavy Duty Light Tower System shall be furnished and installed. The Light head system shall include six 1500 watt Quartz Halogen floodlights, 240 Volt with dual tilt capability. The unit shall have a hand held pistol grip remote control with a 24' cord. The hand held remote shall allow to aim the lights, Pan and Tilt option, operate the light mast up and down and operate the AUTO STOW feature. The control power of the light tower shall be from a 12 volt circuit dedicated to the light tower itself. The 240 volt current for the flood lights shall be provided by an independent circuit breaker. A warning light shall be provided in the drivers console to indicate when the mast is extended.
- 28.13.1. The light tower shall be mounted on the raised cab section of the roof of the vehicle, as outlined in section 10.2. An aluminum protective fairing shall be provided and installed on the front and both sides of the light tower to protect it from damage from overhead obstructions. The area to the rear of the light bar shall be left open to provide proper drainage of rain and snow. The fairing shall be designed and fabricated to be strong enough to afford adequate protection for the light and be painted to match the roof color. The fairing and light bar shall not extend above the body roof line.
- 28.13.2. A high decibel, electronic beeper alarm shall be installed and activate, when the light tower is not in it's nested position. The alarm shall sound only when the vehicle is placed in drive or reverse and be independent of the light tower up warning light in the console.
- 28.13.3. A four inch "AMBER" Signal Stat light shall be recessed in the ceiling of the cab and activate when the light tower is in the up position.
- 28.14. The apparatus shall be equipped with 120 volt Fire Research Corp, FOCUS, FC201-M15, recessed 1500 watt floodlights. Two (2) lights shall be mounted on both the drivers and passengers side of the apparatus. The lights shall be installed in the body panel and be mounted by use of a cast aluminum recessed housing. The housing shall be installed from the outside and be removable if the lights need to be serviced. The bulbs shall be serviceable from the outside of the vehicle.

## 29. Warning Signals

- 29.1. All warning lights shall be controlled by a Whelen MPC01 programmable control head including the siren driver and PA microphone.
- 29.2. A Whelen brand ULTRA Light bar 9U728000 series shall be provided and installed. The exact layout, colors of the lenses, and other details shall be coordinated with the successful bidder upon signing of the contract.
- 29.3. Ten (10) Whelen 600 series LED (Light Emitting Diode) light heads with red lenses shall be provided on the lower portion of the apparatus. The rectangular lights shall be wired with weatherproof connectors and shall be surface mounted in compliance with NFPA standards as close to the corner points of the apparatus as is practical as follows:
  - 29.3.1. Two lights on the front of the apparatus facing forward
  - 29.3.2. Two lights on the rear of the apparatus facing rearward
  - 29.3.3. Two lights each side of the apparatus, one each side at the forward most point (as is practical), and one each side at the rearward most point (as is practical).
  - 29.3.4. One light each side of the apparatus centrally located to provide mid ship warning.
- 29.4. Ten (10) Whelen 900 series LED (Light Emitting Diode) light heads shall be provided on the upper portion of the apparatus. The rectangular lights shall be wired with weatherproof connectors and shall be surface mounted in compliance with NFPA standards as close to the corner points of the apparatus as is practical as follows:
  - 29.4.1. Two red lights on the front of the apparatus facing forward
  - 29.4.2. Two amber lights on the rear of the apparatus facing rearward
  - 29.4.3. Two red lights each side of the apparatus, one each side at the forward most point (as is practical), and one each side at the rearward most point (as is practical).
  - 29.4.4. One red light each side of the apparatus centrally located to provide mid ship warning light.
- 29.5. A Federal Q2B mechanical siren with chrome grille, shall be recess mounted within the front bumper of the vehicle. The siren shall include a siren brake momentary switch located in the front drivers console. A heavy duty foot switch shall be installed on the floor of the cab on the drivers side and on the dog house on the officers side. The switches shall activate a relay controlled circuit and not carry the load of the Q2B siren.
- 29.6. A heavy duty electronic headlight flasher shall be installed and wired to the MPC01 control head.

### 30. Paint & Graphics

- 30.1. The apparatus shall be painted with white over red Dupont Imron paint, or approved equivalent. All welds, rough spots, etc, shall be filled and ground and all joints and seams shall be sealed. All parts shall be steam cleaned and phosphate washed, after which they shall be primed and wet sanded to achieve the smoothest finish. The primer shall be compatible with the finish paint. The apparatus shall be painted fire truck red, with a white roof. The color break line shall be determined and approved by the Fire Chief prior to painting. The Imron red paint number is N0506HW, and the Imron white paint number is B8550HW.
  
- 30.2. Lettering and graphics shall be provided as listed below. Locations, actual sizes and photographs of the Town seals and engine company logos shall be provided to the successful bidder. All graphic plans shall be approved by the Scarborough Fire Chief prior to completion.
  - 30.2.1. A 6” white reflective stripe shall be provided above the front bumper and along each side of the apparatus as required by NFPA.
  - 30.2.2. The word “Scarborough” shall be centered on the front of the cab.
  - 30.2.3. The words “Oak Hill” shall be located on the front of the cab.
  - 30.2.4. A reflective “SQ 7” shall be located on the front corner of each side of the cab.
  - 30.2.5. A reflective “SQ 7” shall be located on each side of the rear of the apparatus
  - 30.2.6. The word “Scarborough” shall be located in an arch above the town seal on both front doors in gold leaf style lettering.
  - 30.2.7. The Town seal (photograph to be provided) shall be located on each front door.
  - 30.2.8. The words “Squad 7” shall be located between the front doors and the crew doors on each side of the apparatus in gold leaf style lettering.
  - 30.2.9. There will be one company logo (photograph to be provided) located on each side of the apparatus in the cab area.
  - 30.2.10. “Keep Back 500 Feet” shall be located on the rear of the apparatus in reflective lettering.
  - 30.2.11. The rear of the apparatus, on both sides of the access stairs, shall be painted with a full length reflective Chevron style yellow and red striping pattern.

### **31. Cascade System**

- 31.1. The apparatus will come with a complete mobile breathing air cascade system designed to provide air suitable for human respiration with Self Contained Breathing Apparatus (SCBA).
- 31.2. The complete system shall be installed, tested, and completely functional including all components, interconnecting hoses, and plumbing at the time of delivery of the apparatus.
- 31.3. Air purity shall meet or exceed the standards of the Compressed Gas Association Specification G-7.1 for Grade "E" Breathing Air. All tubing shall meet NFPA, SAE, JIC and ANSI Standards. All valves shall meet the applicable National Codes such as those of the Bureau of Explosives, DOT and CGA. The entire air system shall meet all requirements established by the Occupational Safety and Health Act, otherwise known as OSHA. Air receivers shall have a four to one safety factor and shall be constructed in accordance with Section VIII of the ASME Code for Unfired Pressure Vessels or Department of Transportation (DOT) Code. All equipment supplied shall be new.
- 31.4. The system will be designed for a maximum storage pressure of 6,000 psi and will be configured to fill both 4,500 and 2216 psi SCBA bottles.
- 31.5. The storage system shall include four (4), 509 cu. ft., ASME bottles at 6,000 psi. The cascade bottles are to be mounted in the bottom of the upper walkway compartments (two each side) with a removable shelf that allows access to the bottles for maintenance and also serves as the bottom of the upper storage compartment.
- 31.6. A RevolveAir model SCBA fill enclosure shall be supplied and installed on the driver's side of the apparatus. The system will allow the filling of two SCBA bottles while two others are being connected to the system.
- 31.7. A Sierra electric boost pump shall be furnished and installed on top of the fill enclosure. This system shall boost the stored air pressure to maximize the available breathing air volume and boost it to either 2,216 or 4,500 psi

### **32. Optional Equipment---to be bid separately with itemized prices.**

- 32.1. The rear bumper of the vehicle shall be equipped with a Global Warning system. The rubber actuator shall be attached to a reinforced bumper and shall activate the vehicle air brakes when the actuator is impacted and the gear shift selector is placed in the reverse position.
- 32.2. A custom fabricated command center shall be fabricated and installed in the cab.

### 33. Compliance with Specification Certification Form

Comply	Exception Attached		Comply	Exception Attached	
<input type="checkbox"/>	<input type="checkbox"/>	1.0 Intent	<input type="checkbox"/>	<input type="checkbox"/>	25.0 Running Board & Tread Plates
<input type="checkbox"/>	<input type="checkbox"/>	2.0 Variance from Specifications	<input type="checkbox"/>	<input type="checkbox"/>	26.0 Hand Rails
<input type="checkbox"/>	<input type="checkbox"/>	3.0 Manufacturer's Qualifications	<input type="checkbox"/>	<input type="checkbox"/>	27.0 12 volt Electrical System
<input type="checkbox"/>	<input type="checkbox"/>	4.0 Bidding Instructions	<input type="checkbox"/>	<input type="checkbox"/>	28.0 110v Elec. System & Generator
<input type="checkbox"/>	<input type="checkbox"/>	5.0 Delivery	<input type="checkbox"/>	<input type="checkbox"/>	29.0 Warning Signals
<input type="checkbox"/>	<input type="checkbox"/>	6.0 Contract Award	<input type="checkbox"/>	<input type="checkbox"/>	30.0 Paint & Graphics
<input type="checkbox"/>	<input type="checkbox"/>	7.0 Acceptance Authority	<input type="checkbox"/>	<input type="checkbox"/>	31.0 Cascade System
<input type="checkbox"/>	<input type="checkbox"/>	8.0 General Requirements	<input type="checkbox"/>	<input type="checkbox"/>	32.0 Optional Equipment
<input type="checkbox"/>	<input type="checkbox"/>	9.0 Payment	<input type="checkbox"/>	<input type="checkbox"/>	33.0 Compliance with Specifications
<input type="checkbox"/>	<input type="checkbox"/>	10.0 Cab	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	11.0 Cooling System	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	12.0 Exhaust System	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	13.0 Fuel System	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	14.0 Engine and Transmission	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	15.0 Brakes	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	16.0 Steering	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	17.0 Frame	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	18.0 Suspension	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	19.0 Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	20.0 Front Axle	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	21.0 Rear Axle	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	22.0 Wheels and Tires	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	23.0 Body and Compartments	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	24.0 Compartment Layout	<input type="checkbox"/>	<input type="checkbox"/>	

By signing this form, bidder certifies that all items checked above comply with the Scarborough specifications without exception. Any item where bidder takes exception to the Scarborough specifications must be clearly explained in a separate document entitled "Exceptions to Specifications" with a reference to the original Scarborough specification item number.

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Bidder

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Date

## **Mailing List:**

### **Emergency One**

Attention Chris Champagne  
Greenwood Motors  
P. O. Box 601  
Raymond, ME 04071

### **Pierce**

Attention Jeff Fournier  
Minuteman Fire & Rescue Apparatus  
2181 Providence Highway  
Walpole, MA 02081

### **Ferrara**

Attention Chuck Degrampe  
Emergency Vehicles of Maine  
250 Broad Street  
Auburn, ME 04210

### **PL Custom**

Attention Ron Morin  
Sugarloaf Ambulance  
1004 Poplar Stream Road  
Carrabassett Valley, ME 04947

### **Marion**

Attention Bruce Morse  
Northeastern Fire Associates  
9 Emerald Acres  
Barrington, NH 03825

### **KME**

Attention Sales  
Bulldog Fire Apparatus  
P. O. Box 58  
17 Winter Street  
Woodville, MA 01784

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**INTEROFFICE MEMORANDUM**

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**TO:** HEAVY RESCUE TRUCK BIDDERS  
**FROM:** B. MICHAEL THURLOW, FIRE CHIEF  
**SUBJECT:** SPECIFICATION AMENDMENT #1  
**DATE:** 12/7/2005  
**CC:**

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Dear potential bidder,

An error in our Invitation to Bid Heavy Rescue Apparatus specifications dated 11/15/2005 was discovered after the bid documents were distributed. This specification amendment was issued and mailed to all bidders and posted on the town's web site for clarification.

The sections involved are noted below. The sections stricken out are to be removed and the underlined are additions to the original language.

**14. Engine and Transmission**

- 14.1. The engine shall be a Detroit Diesel Series 60, 315-370 hp minimum, ~~or approved equivalent~~. The engine shall meet all DOT and EPA criteria regarding diesel engines.
- 14.2. The transmission shall be an Allison model 3000-4000 EVS transmission. The transmission control shall be equipped with a "mode" switch to control road speed.

Note: Due to standardization of our fleet and the dependability of this power plant / transmission combination the base bid must include this engine and transmission combination with no exceptions.

An alternative bid in addition to the base bid for an equivalent engine coupled with a compatible Allison automatic transmission may be submitted providing it has been engineered and determined suitable for the proposed apparatus. Detailed supporting documentation must be included if the bidder intends to submit an alternate engine option.

Please don't hesitate to contact me if you have any questions with this specification clarification.