Odenton Volunteer Fire Company (OVFC)
1425 Annapolis Road
Odenton, MD 21113
Specifications for a 1500 GPM Custom Fire Engine (Rev. 1)

General Information:

These specifications are intended to describe a (one) 1500 GPM Class A, stainless steel, custom, four door, cab over engine style pumper. This unit shall be built in accordance with the latest NFPA standard for fire apparatus. If any replications or duplications occur in this specification, they should be considered oversight and the specification shall prevail.

Design:

Each bid shall contain/include a detailed description of the apparatus and equipment that the bidder proposes to furnish and to which the apparatus must conform to under contract. Minor details of construction and materials, not otherwise specified, are left to the discretion of the manufacturer, who is solely responsible for the design, construction and performance of all features outlined in the specification.

Bid Specifications:

Each bid shall contain accurate information and statements in the spec pertaining to weight, vehicle dimensions, wheelbase, turning radius, approach and departure angles, compartment dimensions. A detailed engineering drawing of the apparatus shall be submitted with the bid proposal, to the OVFC Apparatus Committee. The manufacturer shall arrange two visits to the assembly facility by five OVFC representatives. The cost of which shall be included in the purchase price of the apparatus. One visit shall be for the pre-engineering conference and one for the final inspection.

Liability:

The contractor shall defend any and all suits and assume all liabilities its officials or agents claim. It shall defend any and all claims made against the purchaser for the use of any patented appliance furnished under this contract.

Delivery:

A qualified delivery engineer representing the manufacturer shall deliver the apparatus overland, under its own power and remain for a sufficient period of time to instruct personnel in the operation, care and maintenance of the apparatus. A manufacturer qualified representative shall revisit the OVFC forty five to sixty days after delivery to answer further

questions and make any adjustments to the apparatus necessary for satisfactory operations. Such delivery and instruction shall be included at no additional expense to the OVFC. Two copies of operations, parts and maintenance manuals shall be furnished at the time of delivery. The Certificate of Title and Bill of Sale shall be presented at the time of delivery.

Exceptions to Proposal:

These specifications are intended to describe a desired vehicle. Any manufacturer may bid, and is encouraged to do so, by noting exceptions where necessary. Taking exception to this proposal will not result in the rejection of a bid; however the numbers and extent of such exceptions shall be considered in the final award. ***Any bid not accompanied by a statement of exception shall be construed meeting, in full, all of the requirements set forth herein in all details, and will be so judged at the time of selection and acceptance by OVFC.***

Payment Terms:

Payment terms will be discussed with the selected bidder and agreed to prior to signing a contract.

Correspondence:

All correspondence, bid documents, drawings, etc. shall be addressed to:

Ray Hodgson; Apparatus Committee Chairman
Odenton Volunteer Fire Company #28
1425 Annapolis Road
Odenton, MD 21113

Dimensions:

1. Overall height of the apparatus to be kept as short as possible, not to exceed 10 ft.
2. Overall width of the apparatus not to exceed 96 inches.
3. Overall wheelbase of 168 to 172 inches.
4. Overall length of the apparatus not to exceed 30ft.
5. Overall weight TBD by manufacturer and estimate provided to OVFC with bid.

Cab Specifications:

1. Manufacturer's custom full tilt cab with seating for six personnel.
2. Cab shall be "flat roof" style. No raised roof
3. Cab over engine design with easy access for vital engine fluids such as transmission fluid, engine oil, power steering fluid, antifreeze, and batteries.
4. Fully adjustable tilt and telescoping steering wheel shall be provided.

5. Driver seat shall be 911 seat, air ride, high back.
6. Officer seat shall be 911 seat, fixed, with SCBA
7. Four 911 seats, fixed, with SCBA are to be provided in the crew compartment.
8. All seating units shall be Dura-wear rip stop fabric or equivalent.
9. All seating shall have the OVFC patch embroidered in head rest area of seat. (OVFC to provide patches.)
10. Officer and crew seats to have a SCBA bracket for an MSA 45 minute air cylinder.
11. All personnel doors on cab to have electrically operated window.
12. No partition shall be provided between the cab and the crew compartment.
13. Sun visors are to be provided.
14. Front and rear heaters are to be provided with an easily accessible shut off valves.
15. Cab must have air conditioning.
16. Easy access to the cab ceiling for maintenance and installation of electrical wiring and antenna cabling.
17. The inside of the cab; floor, walls, ceiling, door panels, engine cover and dash shall be covered in Linex or equivalent, where possible
18. The battery compartment(s) shall be well ventilated and drained to the outside of the vehicle and shall provide easy replacement of the batteries. The compartment(s) shall be accessible without having to tilt the cab.
19. 270 degree sweep, analog gauges shall be provided for oil pressure and temperature, water temperature, transmission temperature, battery voltage, charge and discharge current, engine speed, engine hours, vehicle speed and air system pressure. The gauges shall be indirectly lighted and shall be as large as practical for easy reading while driving. Easy access for repair and replacement of the gauges and lamps shall be provided.
20. All switches, control, gauges, lamps, etc. are to be mounted on easily removable panels for repair/maintenance and back lighted.
21. West Coast mirrors mounted on the front doors of the cab are to be provided. The mirrors should be heated and electrically adjustable from the cab.
22. Convex "spot" type mirrors shall be included and mounted below the West Coast mirrors.
23. Under the front bumper, driver's side, a set of glad-hands air connection in the case of the vehicle having to be towed.
24. Decorative, chrome plated, traditional fire bell, mounted on front bumper with pull cord run to officer riding location.
25. 4 - Reflective Scotch-lite "STOP" signs. One mounted to the interior of each cab door, visible to traffic when door is opened.
26. An 8-slot map box with Velcro to secure map books.

Engine:

1. A diesel engine, minimum of 425 horsepower.
2. A Jacobs's engine brake with On/Off as well as lo-med-hi switch controlled from the cab, within easy reach of the driver, shall be provided.

3. An electro-pneumatic operated fast idle control shall be provided.
4. The engine shall be equipped with easily accessible spin-off filters for fuel, oil and coolant.
5. A fuel shut-off valve(s) shall be provided on the fuel tank side of the fuel filters.
6. An automatic fuel/water separator shall be provided.
7. A coolant recovery system shall be provided.
8. The exhaust system shall not protrude more than 6 inches below the body at any point and exit in front of the rear axle. Exhaust shall be adaptable to Plymovent exhaust system

Transmission:

1. An Allison EVS 4000 transmission with a "T" handle shifter shall be provided.
2. An auxiliary cooler is to be provided in the radiator using stainless steel braided lines.
3. A spin-on fluid filter is to be provided.
4. The manufacturer shall certify the engine/transmission/driveline as acceptable for fire department service.

Frame:

1. The frame shall be heavy-duty construction.
2. A front frame extension and tray mounted to the frame extension shall be provided to accommodate 25 feet of 6 inch soft suction sleeve with front suction from pump and a 2.5 inch discharge piped from pump.
3. Four tow eyes shall be provided, two front and two rear

Axles, Tires, Wheels, Springs, Brakes and Steering:

1. The front axle and springs shall be rated at no less than 10 percent more than the actual equipped load and shall be equipped with shock absorbers; it shall provide for the smallest possible turning radius.
2. The rear axle and springs shall be rated at no less than 10 percent more than the actual equipped load.
3. The rear differential gear ratio shall be that which will provide a maximum level road vehicle speed of 68 mph at the engine's loaded governed speed with the tires/wheels provided.
4. The wheels shall be single piece aluminum disc type for use with tubeless tires.
5. The tires shall be radial, tubeless type design, of appropriate size and weight rating to accommodate the loaded vehicle weight plus a safety factor.
6. Bendix-Westinghouse air dryer with heated outlet is to be provided.
7. Three air reservoirs shall be provided. All bleeder lines run to the pump panel under the pump side step.

8. Spring-air parking brakes are to be provided. A protective covering shall be provided to prevent unintentional release.
9. Full air disc brakes sized according to GAWR plus the safety factor.
10. The steering shall be of the cam and lever type with integral power assist shall be provided.
11. Vehicle to have On-Spot snow chains

Fire Pump, Piping, Etc:

Except where noted all piping is sized by the inside diameter. All threaded adapters, fittings, and devices are National Standard Thread (NST) sizes. All valves are to be full flow, swing-out center ball valves.

1. The fire pump shall be a Hale 1500 GPM.
2. The pump shall be gear driven by the engine.
3. A certified copy of the manufacturer's performance test is to be provided.
4. An electronic hand throttle shall control the discharge pressure.
5. A sealed electric motor driven primer shall be provided.
6. The pump shall be air shifted from the cab.
7. The tank to pump piping shall be 3 inch and incorporate a check valve. Minimum flow from the booster tank shall be 500GPM.
8. The tank fill shall be 2.00 inch.
9. A 6-inch air operated valve with front intake suction pipe shall be provided at the front of the vehicle and in the rear (tail step) compartment.
10. Front intake shall be recessed into the front bumper, enclosed with a drop down door.
11. The side suction intake piping shall be of the short tube design and shall be 6 inch in diameter.
12. A 2.5 inch auxiliary intake on the driver AND officer side pump panels are to be provided.
13. Discharge outlets are to be provided as follows:
    2 each, 2.5 inch NST, driver side pump panel
    1 each, 2.5 inch NST, officer's side pump panel
    1 each, 4 inch NST, officer's side pump panel with Storz fitting
    2 each, 2.5 inch NST, rear step below hose bed
    2 each, 2.5 inch NST, front hose body in hose bed
    1 each, 2.5 inch, front bumper
    1 each, 3 inch for pre-piped deluge gun in the dunnage compartment
14. All discharges shall be equipped with plunger type drain valves.
15. The pump shall be equipped with a master drain system.
16. A relief valve shall be provided piped to the high point of the suction piping. It shall be piped to discharge under the running board on the right side and shall be equipped with a 2.5 inch male NST coupling and marked "DO NOT CAP".

17. All discharge controls shall be designed for ease of operation, recognition, and minimum operating force. Color coding of discharges and corresponding gauges TBD
18. The gauge panels on the driver side of the vehicle shall be hinged for easy access to gauges, controls, valves, wiring, etc. Latches shall be provided for access
19. No pump or drain controls are to be located below the levels of the running boards.
20. All 2.5 inch discharges shall be equipped with 2.5 inch to 1.5 inch reducers and 1.5 inch blind caps with chains.
21. All individual discharge pressure gauges shall be 3 inch, 0-400 psi fluid filled type
22. Gauges shall be color coded and/or labeled to denote corresponding discharges.
23. A 6-inch compound master intake and discharge gauges shall be provided, 30' vacuum-400 psi.
24. All gauges, valve controls, drain controls and their respective labels are to be arranged in a uniform manner that reflects the location of the respective device being controlled.
25. All controls, handles, fittings, etc are to be constructed of non-corrosive materials.
26. A water tank level gauge shall be provided on each side of the pump panel. Lights shall be LED.
27. An auxiliary engine cooler and emergency engine cooling is to be provided.

Hose Body:

1. The hose body shall be manufactured of metal, same as cab assembly.
2. The body shall be reinforced as needed.
3. The hose bed floor shall be constructed of extruded aluminum channel and shall be easily removable.
4. Five hose bed dividers shall be provided constructed of aluminum and reinforced.
5. A channel shall be provided at the front and rear of the hose bed so as to provide easy adjustment of the partitions.
6. The hose bed shall be able to accommodate 4 attack lines with minimum 300 ft. of 1.75 inch, 1000 ft. of 3 inch supply line and 1000 ft. of 5 inch supply line. The hose bed must be a low profile.
7. Two of the attack line discharges shall be piped to the front of the hose body and be 2.5 inch male NST.
8. Height of the hose body shall not exceed the height of the apparatus cab.
9. Heavy duty flip down steps shall be mounted on the rear hose body to access the top of the vehicle. **Location TBD**
10. An open diamond plate type tray with Velcro straps to contain and secure two high rise firefighting hose packs. Tray shall be mounted on the officer side below the ladders

Water Tank:

1. Shall be of 500 US gallon capacity.
2. Shall be poly plastic type material.
3. Shall be removable from the hose body without disturbing the body side panels.

4. Shall rest on hardwood frame liners and shall be free floating within the frame.
5. Shall be equipped with removable covers, secured by a stud and nut combination and sealed by a rubber gasket.
6. The tank shall be baffled according to NFPA specifications.
7. The tank shall be equipped with a large rectangular fill tower with hinged screen and cover, located in the left front hose bed. The tank shall also be equipped with a 4 inch overflow/vent that shall be piped to discharge in the rear of the rear wheels. Fill tower shall not exceed the height of the hose body.
8. Easily replaceable water level indicator anodes shall be provided.
9. An anti-swirl device shall be mounted over the tank to pump outlet. The tank shall also be provided with a deep well sump.

Exterior Lighting:

1. One pole 120-volt, 1000-watt light, each side, rear of the cab, prior to pump housing.
2. One pole 120-volt, 1000-watt light, each side, rear of hose bed permanently mounted, but able to swivel.
3. One 120-volt, 750-watt brow light mounted on the center cab roof.
4. All lighting shall be wired to controls in the cab within easy reach off the officer and driver and controls on the driver side pump panel. Lighting operated off of generator.

Compartments:

1. No roll up doors.
2. Hose body shall have 5 lower body compartments, two each side and one rear step.
3. Rear hose body compartment shall be double door.
4. Upper hose body, on the driver side, shall have 2 high side style compartments with flip up doors.
5. The officer side hose body compartments shall be hinged on the right side.
6. The driver side hose body compartment forward of the rear axle shall be hinged on the right side.
7. The driver side hose body compartment behind the rear axle shall be hinged on the right side.
8. Both rear side hose body compartments and the rear step compartment shall be full transverse and open to each other.
9. All enclosed compartments shall be of weatherproof construction and shall have ventilation louvers on the rear wall.
10. All compartments shall be LED illuminated and controlled by individual door switches connected through a master switch in the cab.
11. A red flashing LED "door open" warning lamp shall be installed in the cab and in full view of the officer and driver.
12. Compartment doors shall have drip rail tapped and screwed in place. Double sided tape is NOT acceptable

13. All compartments shall be of a pan type construction with D type handles.
14. All compartment doors interiors shall be Linex or equivalent
15. All Lower body compartments shall have adjustable height shelving
16. Interior of all compartments shall be finished with Linex or equivalent.
17. A 40" long x 9.5" wide x 9" deep hose tray will be provided on each side below the pump panel.

Lighting, Safety Equipment and Warning Devices:

1. All DOT lighting shall be LED where available/applicable.
2. All emergency lighting shall be LED, red and white. All emergency lighting shall meet the current NFPA standard.
3. A Roto-Ray, center mounted above grill, below windshield. Roto Ray shall have 1 red, 1 blue and 1 clear light.
4. Two Mars 888 lights, mounted one each side of cab at the transition from the front to side of the apparatus, forward the driver and officer doors at the base of the windshield. Mars 888 lights shall be clear light.
5. A Federal Q2B mechanical siren to be provided, mounted in front bumper
6. Two Grover air horns shall be provided, mounted in front bumper.
7. Foot Switches for the Federal Q2B siren and Air Horns are to be provided for the driver.
8. Federal Q2B foot switch only for the officer.
9. A Powercall RDX electric siren mounted in the cab with access for the officer and driver to control. Speaker for electric siren mounted in front bumper.
10. A two way buzzer system shall be installed, controlled from the rear step and the cab.
11. The headlights shall be quartz halogen, quad type.
12. A hooded pump panel light shall be provided and shall illuminate the entire width of the pump panel. Lights shall be LED.

Electrical Panel, Wiring Requirements and Power Unit:

1. A negative ground 12-volt system shall be provided.
2. All individual circuits, switches, controls, and wiring shall be labeled and/or color-coded as to their function.
3. A circuit breaker panel shall be provided and mounted in an easily accessible location.
4. A load manager shall be furnished. The vehicle shall be equipped with an auto-eject plug located between the driver's door and crew door close as possible to the driver's door. A digital display of the battery charging shall be mounted inside the drivers' door area, visible from the ground.
5. A VMUX or Command Zone multiplexing system shall be provided.
6. A single battery disconnect switch, controlling the contactors, shall be provided.
7. A 10 KW Onan diesel generator to be provided. Generator to be installed in the dunnage area over top of the fire pump and mounted in a manner to facilitate easy removal in case of repair. Controls to pre-heat/start and stop generator shall be located

in both the cab and on the driver side pump panel in conjunction with the HID scene light controls.

8. Three electrical outlets, 120v three prong twist lock style to be provided, Locations TBD.
9. A 200' electric cord reel on officer's side at top of pump panel, operated off of generator.

Paint and Striping:

1. Apparatus shall be painted to match existing OVFC apparatus. Cab shall be white over red. Pump module and hose body shall be all red. Paint numbers for white and red will be furnished by OVFC.
2. Paint samples to be provided to OVFC for final approval prior to any painting of the apparatus.
3. Lettering scheme with 4-inch white stripping TBD. A sketch concept will be provided by OVFC to manufacturer

Ladders:

The following ladders are to be provided and mounted at the factory.

1. 1 - 28ft. Two section Duo safety aluminum extension ladder. Model 1200-A
2. 1 - 14ft. Duo Safety aluminum roof ladder. Model 775-A
3. 1 - 10ft. Duo Safety aluminum folding "attic" ladder. Model 585-A

Other Equipment:

1. 2 - 6ft. Multi-purpose hooks with fiberglass handle, Model MPH6 from Fire Hooks Unlimited
2. 1 - Pick head axe with fiberglass handle
3. 1 - Flat head axe with fiberglass handle
4. 1 - 20 lb ABC dry chemical extinguisher with locking mount bracket
5. 1 - 15 lb CO2 extinguisher with locking mounting bracket
6. 1 – 2 ½ gallon pressurized water fire extinguisher with locking mount bracket
7. 1 - Quick release type deck gun with portable base for ground deployment.
8. Deluge/Deck gun shall contain 500, 600, 800 and 1000gpm capable tips
9. 2 - 10ft. lightweight hard suction hoses mounted on the hose body.
10. 1 – Suction barrel strainer for hard suction hoses
11. A 6 position David Clark headset system in cab and remote jack on driver side pump panel.
12. 5 Streamlight Fire Vulcan LED hand lights with chargers, Orange in color, to be provided. Mounted locations TBD.
13. Twelve 100' sections of 5" supply hose.