PART A

BID SUBMISSION

FORM A: BID
(See B7)

1. Project Title — SUPPLY & DELIVERY OF TRIPLE COMBINATION PUMPER FIRE APPARATUS

2. Bidder

_____
Name of Bidder

_____
Street

_____
City Province Postal Code

(Mailing address if different)

_____
Street or P.O. Box

_____
City Province Postal Code

The Bidder is:

(Choose one)

☐ A sole proprietor

☐ A partnership

☐ A corporation

carrying on business under the above name.

3. Contact Person — The Bidder hereby authorizes the following contact person to represent the Bidder for purposes of the Bid.

_____
Contact Person Title

_____
Telephone Number Facsimile Number

4. Definitions — All capitalized terms used in the Contract shall have the meanings ascribed to them in the General Conditions and D3 unless the context otherwise requires.

5. Offer — The Bidder hereby offers to perform the Work in accordance with the Contract for the price(s), in Canadian funds, set out on Form B: Prices, appended hereto.

6. Commencement of the Work — The Bidder agrees that no Work shall commence until he is in receipt of a Purchase Order authorizing the commencement of the Work.

7. Contract

The Bidder agrees that the Bid Opportunity in its entirety shall be deemed to be incorporated in and to form a part of this offer notwithstanding that not all parts thereof are necessarily attached to or accompany this Bid Submission.

8. Addenda

The Bidder certifies that the following addenda have been received and agrees that they shall be deemed to form a part of the Contract:

No. _____ Dated _____

_____ _____

_____ _____

9. Time

This offer shall be open for acceptance, binding and irrevocable for a period of sixty (60) Calendar Days following the Submission Deadline except that the availability of the goods for Item 1 bid may be subject to bona fide prior sale.

10. Signatures

In witness whereof the Bidder or the Bidder's authorized official or officials have signed this

_____ day of _____ , 20_____ .

Signature of Bidder or
Bidder's Authorized Official or Officials

_____

_____
(Print here name and official capacity of individual whose signature appears above)

_____

_____
(Print here name and official capacity of individual whose signature appears above

FORM B: PRICES
(See B8)

SUPPLY & DELIVERY OF TRIPLE COMBINATION PUMPER FIRE APPARATUS

UNIT PRICES

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
1	Demo Triple Combination Fire Apparatus	05009	Each	2	$_____	$_____
2	Custom Triple Combination Fire Apparatus	05009	Each	3	$_____	$_____

TOTAL BID PRICE (GST and PST extra) (in figures) $ _____

(in words)_____

_____

_____
Name of Bidder

FORM N: DETAILED SPECIFICATIONS 05009

TRIPLE COMBINATION PUMPER FIRE APPARATUS

(Winnipeg Fire Paramedic Service)

1.0 INTENT

1.1 It is the intent of these specifications to describe a front engine, rear wheel drive, triple combination pumper fire apparatus.

1.2 The triple combination fire apparatus, hereinafter referred to as **"Demo Unit"**, with approximately 100 hours of usage, 2004 model or newer as may be modified by these specifications. The apparatus shall be furnished complete and ready for use. Any parts not specifically mentioned but which are required to complete and place the apparatus in successful operation shall be furnished as though specifically mentioned in these specifications.

1.3 The triple combination fire apparatus, hereinafter referred to as **"Custom Build Unit"**, shall be 2005 model as specified within this document. The apparatus shall be furnished complete and ready for use. Any parts not specifically mentioned but which are required to complete and place the apparatus in successful operation shall be furnished as though specifically mentioned in these specifications.

1.4 The ratings specified herein state the minimum values acceptable to the City, not implying that those values are sufficient for the design of the particular apparatus being bid.

2.0 STANDARDS

2.1 National Standards of Canada No. CAN/ULC-SS15-M88 and National Fire Protection Association Standard NFPA 1901 (current edition), with latest revisions, form an integral part of these specifications and any conflict with the specifications shall be brought to the attention of the Contract Administrator in Clause D4.1 of the Supplemental Conditions.

2.2 All applicable SAE standards form an integral part of the chassis specifications and shall have precedence in any conflict concerning minimum acceptable standards.

2.3 The apparatus shall comply with the Canada Motor Vehicle Safety Act and the Manitoba Highway Traffic Act.

2.4 Bidders shall include a written statement within 48 hours upon the request of the Contract Administrator, certifying that the apparatus being bid complies with all requirements of the standards referred to in this document. The Bidders shall also include Approval Drawings (general arrangement) depicting the vehicle's appearance from the left side, right side, front and rear elevation views. Drawings shall also depict location and arrangement of the pump controls scaled the same as the elevation views.

2.5 The chassis being supplied for the apparatus shall be the same model that has been tested to demonstrate that it meets the requirements European Crash Test Standards, **ECE R-29 Uniform Provisions Concerning the Approval of Vehicles With Regard to the Occupants of the Cab of a Commercial Vehicle**. The Bidder shall submit within (48) hours of the request of the Contract Administrator, proof of compliance with E.C.E. Reg. 29, including the test results, certified by a registered Professional Engineer and satisfactory to the Contract Administrator.

3.0 QUALIFICATIONS OF MANUFACTURER

3.1 The manufacturer of the apparatus shall have a minimum of five (5) years continuous experience manufacturing apparatus of the type being offered. The manufacturer shall have in effect a

complete and documented quality control program ensuring compliance with all applicable standards.

Note: Bidders shall include within 48 hours upon the request of the Contract Administrator a detailed description of the manufacturer's experience and qualifications. A list of at least five (5) references for the type of apparatus being offered shall be included. The list shall include the fire department's name, location, contact person, telephone number and the length of time the apparatus has been in service.

3.2 The manufacturer of the apparatus shall have successfully demonstrated the operation of the type of apparatus being offered in cold weather (-40°C) conditions.

4.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS

4.1 All items in these specifications must be answered indicating compliance or non-compliance. **Bidders shall state "yes" for compliance or state the deviation, or state the information requested**. All deviations shall be clearly stated and fully detailed.

4.2 Each bidder is required to fill in every blank. **Failure to do so may be used as a basis for rejection of bid.**

5.0 TYPE

5.1 Shall be a front engine, rear wheel drive, triple combination pumper fire apparatus. _____

- State make and model being bid. _____

6.0 PERFORMANCE

6.1 The apparatus shall be designed and built to operate on a continuous duty basis in the climatic conditions common to the City of Winnipeg. _____

Note: The City of Winnipeg has four seasons with ambient temperatures ranging from approximately 95°F (35°C) to -40°F (-40°C), with an average annual snowfall of approximately 42 in. (1070 mm). The apparatus when not in use will be stored in a heated building.

6.2 The apparatus shall be capable of carrying a driver and four (4) Fire Department personnel wearing protective clothing and gear, a full water and foam tank, and a full complement of fire fighting equipment and hose in a safe and efficient manner on an emergency response call. _____

7.0 GVWR, DIMENSIONS AND TURNING RADIUS

7.1 Gross vehicle weight rating (GVWR). _____

7.1.1 Gross axle weight rating (GAWR), front must be a minimum 10% greater than actual vehicle weight carried on front axle. _____

7.1.2 GAWR, rear must be a minimum 10% greater than actual vehicle weight carried on rear axle. _____

7.2 State the tare weight of the apparatus being bid:

- Front. _____

- Rear. _____

- Total. _____

7.2.1 State the weight distribution of the apparatus with the water and foam tanks filled: _____

- Front. _____

- Rear. _____

7.3 State the following dimensions: _____

a) Overall width – 102 in. (2591 mm) maximum. _____

b) Overall height – 132 in. (3353 mm) approx. _____

Note is deleted _____

c) Overall length – 35 ft. (10.7 m) maximum, state. _____

d) Wheelbase preferred – 183 in. approx, state. _____

e) Ground clearance – 8 in. (203 mm) minimum, state. _____

f) Approach and departure angle – nominal 10°. _____

7.4 State the vehicle turning radius, to-wall, measured as per SAE J695 – 35 ft. (10.7 m) maximum. Tighter turning radius is preferred. _____

8.0 ENGINE AND ENGINE EQUIPMENT

8.1 Engine – 6-cylinder in-line diesel engine, Cummins or equal. State make, model and horsepower. _____

8.1.1 Engine horsepower – the engine shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance. All applicable power deductions and parasitic losses associated with the specified equipment shall be considered as required. Certification must be provided to demonstrate acceptable ratings and performance. _____

8.1.2 Engine location – over the front axle. _____

8.1.3 Engine governor – electronic, compatible with fire pumper operation. _____

8.2 Oil drain plug – magnetic type. _____

8.3 Oil filter – as recommended by the engine manufacturer, full flow, spin-on filter. The filter shall be remote mounted such that it is easily accessible for servicing from underneath the vehicle. _____

8.4 Fuel filter, primary – as recommended by the engine manufacturer, spin-on filter, remote mounted on the chassis frame such that it is easily accessible for servicing. _____

8.4.1 Fuel filter, secondary (if recommended) spin-on filter. The filter shall be remote mounted on the chassis frame, easily accessible for servicing. _____

8.5 Starter – 12-volt electric. The starter shall be shielded from exhaust heat where required. _____

8.6 Air cleaner – heavy-duty replaceable element, dry type, as recommended by the engine manufacturer. _____

8.7 Emergency shutdown – air intake flap valve. _____

9.0 ENGINE COOLING SYSTEM

9.1 The engine cooling system shall be in accordance with the engine manufacturer's recommendations for front-engine fire pumper application and an ambient temperature range of 95°F (35°C) to -45°F (-43°C). The cooling system shall be of adequate capacity to maintain the coolant temperature within the recommended range during operation of the fire pump and under high ambient temperature conditions without the use of an auxiliary cooler. The coolant temperature shall not exceed 200°F (93°C) with the fire pump operating at maximum capacity for extended periods of time. The normal operating temperature of the coolant system shall be approximately 180°F (92°C). _____

9.2 Radiator – pressurized type with surge tank or coolant recovery system. _____

9.3 Fan drive – thermostatically controlled fan clutch, viscous type or air clutch. _____

9.4 Coolant – ethylene glycol based extend life coolant protected to -35°F (-37°C) compatible with the engine. _____

9.4.1 Coolant filter – spin-on type, as recommended by the manufacturer. _____

9.5 Hoses – as recommended by manufacturer. _____

9.5.1 Hose clamps – spring loaded, constant torque type. _____

10.0 ELECTRICAL SUPPLY SYSTEM

10.1 12-Volt automotive style electrical supply system. _____

10.2 Batteries – as recommended by the manufacturer considering load requirements and severe use c/w top mounted steel stud terminals and with removable vent caps. _____

10.2.1 Battery location – batteries shall be located in an enclosed battery tray within close proximity to the engine. The battery box shall by fully enclosed, vented and corrosion resistant. The bottom of the battery box shall be dry deck lined. The batteries shall be protected from road spray. Preferable location – back end of cab, battery box mounted on top and across the frame. Within cab battery access requested. _____

10.2.2 Battery cables – 3/0 gauge, colour coded welding type cable, with connector ends soldered and sealed with heat shrink tubing at all terminal connections.

10.3 Battery charging system – on-board system with a 0-20 Amp rated (preferred) automatic charger for charging of the batteries from an external 120-Volt power supply.

10.3.1 Charging system plug-in – automatic ejector type with a 20 Amp receptacle mounted on the front of the apparatus body on the left side, 60 to 80 in. (1524 – 2032 mm) above ground level.

10.4 Ground wire – the electrical wiring harness shall have a dedicated ground wire running the full length of the truck. Weather tight junction boxes shall be provided at the dash, pump panel and the rear of the truck. This ground wire shall be connected directly to the battery negative post. All electrical systems shall be grounded to this ground wire. The total resistance of this ground wire shall not exceed 0.2 Volts drop at any point with all circuits turned on. The conventional grounding system using the frame shall be maintained.

10.5 Alternator – minimum Niehoff 250 or equal alternator with compatible drive system for full load capacity. The alternator shall be shielded from exhaust and engine heat where required. The alternator shall be sufficient to exceed the electrical demands of the vehicle under full load.

10.6 Power disconnect – power to all electrical systems shall be wired through a power disconnect system with the master switch or switches located in the cab for operation by the driver. The system shall be designed to prevent alternator damage in the event that the master switch is placed in the off position while the engine is running.

- State details of the power disconnect system.

11.0 FUEL SYSTEM

11.1 Fuel tank – approximate 50 Imp. gallons (227 L) capacity.

11.2 Fuel transfer pump is required. Pump is to be external to fuel tank, back flow checked and in line with fuel supply line.

12.0 EXHAUST SYSTEM

12.1 Horizontal muffler and exhaust, aluminized or stainless steel.

12.2 Tailpipe – located on the right side of the apparatus, suitable for use with an exhaust extraction system. The tailpipe shall be 90° to the rubrail, shall extend a minimum of ½ in. (13 mm) beyond the rubrail and shall be 3 in. (76 mm) below the rubrail. Hanger brackets shall be a minimum of 18 in. (457 mm) from the rubrail.

Note: The tailpipe configuration is intended for use with a “Plymovent” automatic exhaust disconnection system and shall include the installation of the appropriate adapter.

13.0 TRANSMISSION

13.1 Shall be automatic type as recommended by Manufacturer. State make and model being bid. _____

13.1.1 Torque converter – as recommended by the Manufacturer. _____

13.1.2 Direct drive lockup for pumping operation. _____

13.2 Shifter – as recommended by the Manufacturer. _____

13.3 Transmission oil filter – as recommended by the Manufacturer. _____

13.4 Drain plug – magnetic type. _____

13.5 Oil level dipstick – easy access steel ribbon bayonet type with high and low level markings. _____

13.6 PTO opening – required. _____

13.7 Output retarder – brake pedal activated. _____

14.0 DRIVE SHAFTS

14.1 Preferred Spicer 1810 Series drive shafts with Glidecoat splines. _____

14.2 Adequate clearance shall be provided to allow greasing of the drive shaft U-joints from underneath the vehicle. _____

15.0 AXLES AND SUSPENSIONS

15.1 Front axle – Merritor, 18,000 lbs. capacity minimum c/w oil lubricated wheel bearings. Axle to exceed actual load carried by 10% minimum. State make and capacity. _____

15.2 Front suspension – to match the front GAWR. _____

- State make and model being bid. _____

15.3 Shock absorbers, front – heavy duty, double acting. _____

15.4 Rear axle – Merritor single speed axle, 23,000 lbs. capacity minimum. Axle to exceed actual load carried by 10% minimum. State make and capacity. _____

15.4.1 Drive ratio – for approximately 62 mph (100 km/h). _____

15.4.2 Differential drain plugs – magnetic type. _____

15.5 Rear suspension – air suspension (Raydan preferred) with capacity to match the rear GAWR. _____

- State make and model being bid. _____

16.0 WHEELS AND TIRES

16.1 Front wheels – polished aluminium as recommended by OEM. State. _____

16.2 Front tires – as recommended by OEM. State make, model, size and load rating. _____

16.3 Rear wheels – polished aluminium as recommended by OEM. State. _____

16.4 Rear tires – Grip tread, as recommended by OEM. State make, model, size and load rating. _____

16.5 Spare wheel & tire – one (1) wheel and tire to match front wheel and tire. _____

Note: Spare wheel & tire to be shipped loose.

17.0 BRAKE SYSTEM

17.1 Full air service brake system with spring loaded parking brakes and an anti-lock system. _____

17.2 Antilock braking system – Rockwell Wabco four channel system with diagnostic memory, providing antilock brake control and traction control on both axles. _____

17.3 Brakes, vented disc front and rear – Rockwell preferred. State. _____

17.4 Slack adjusters – Meritor/Haldex automatic type preferred. _____

17.5 Parking brake – spring set parking brakes on rear service brake system. _____

17.6 Air lines – colour-coded, reinforced nylon tubing. _____

17.7 Air compressor – water cooled, pressure lubricated compressor, minimum 16 cfm capacity. The compressor air intake shall be plumbed into the engine air intake after the air cleaner. _____

17.8 Air dryer – heated, spin-on desiccant type. _____

17.9 Moisture ejector – heated, automatic, in wet tank only. _____

17.10 Drain valves – cable operated, in each air tank except the wet tank. The cables shall be vinyl coated and shall terminate at the bottom edge of the cab or at the rub rail on the body. _____

17.11 Auxiliary air reservoir – nominal 1200 in^3 (20 L) air reservoir to operate the vehicle air horns and to function as an emergency parking brake release. A dash mounted control, located directly below the main parking brake release, shall allow the air in the reservoir to be used to release the parking brakes. The control shall be non-detented, spring return type such that it cannot be left engaged in the brake release position. _____

17.12 External air inlet – plumbed to the inlet side of the air dryer such that the air brake system can be charged from an outside source without starting the engine. A check valve shall be located in the inlet line. The air inlet shall be a 3/8 in. (9.5 mm) NPT male fitting, capped, and shall be located

on the left side of the chassis cab. _____

17.13 Air line sources – all air lines shall be sourced after the air dryer. _____

17.14 110-Volt air compressor – on-board air compressor for maintaining pressure in the air reservoirs when the vehicle is parked in a fire hall. Electrical power for the compressor shall be provided through the charging system plug-in (see 10.3.1). _____

18.0 STEERING

18.1 Hydraulic power steering. _____

18.2 Steering column – tilt and telescopic type. _____

18.3 Steering wheel – padded type. _____

19.0 FRAME

19.1 Steel channel rail frame designed and constructed to match the GVWR and the application of the vehicle as a triple combination pumper fire apparatus. _____

19.1.1 Resisting bending moment – 1,700,000 in.-lbs. per rail minimum. _____

19.2 Front frame extension – bolt on as required for 19.2.1. _____

19.2.1 Trash hose storage compartment – approximately 21" x 12" x 12" deep, to accommodate 75 ft. of 1¾" hose with nozzle, c/w aluminium cover, located in front bumper extension. _____

19.3 Front bumper – polished stainless steel bumper bolted to the chassis frame. _____

19.3.1 Corner indicators – blaze orange, flexible sight rods, approx. 24 in. (610 mm) high. _____

19.4 Front tow hooks – two (2) hooks or eyes, bolted to the chassis frame. A crossmember shall be located in the chassis frame at the tow hook location (use of the front bumper as a crossmember is not acceptable). _____

19.5 Rear tow hooks – two (2) hooks or eyes, bolted to the chassis frame. A crossmember shall be located in the chassis frame at the tow hook location. The tow hooks shall be easily accessible. _____

20.0 CAB AND CAB EQUIPMENT

20.1 Four-door, fully enclosed, low entry cab over design, five (5) person minimum crew cab with forward facing seating to accommodate a medical supply cabinet accessible from curbside and within the cab. _____

Note: Bidders shall supply (within 48 hours of the request of the Contract Administrator) a drawing showing the cab interior layout and relevant dimensions.

20.1.1 Construction – corrosion resistant aluminium, 3003-H14, 5083-H321

saltwater marine grade or equal. State material. _____

20.1.2 Insulating material to prevent galvanic corrosion shall be provided at all possible areas of contact between aluminium and steel. The insulation material used shall be nonporous. _____

20.2 Cab interior – **raised rear roof style** cab. The cab interior height shall be sufficient for an average firefighter to stand erect in the rear portion, and a cab width of 87 in. (2.2 m) minimum. Fixed, tinted glass windows shall be located in the front and sides of the cab as permitted by the highway traffic act. Minimum cab interior length – 134 in. (3.4 m). _____

20.3 Entrance doors – two (2) per side. _____

20.3.1 Door opening height, front door – maximum height of cab (determined by structural requirements of manufacturer). _____

20.3.2 Door opening height, rear door – maximum height of cab (determined by structural requirements of manufacturer). _____

20.3.3 Door handles / latches, exterior – as recommended by manufacturer. _____

20.3.4 Door handles / latches, interior – flush-mounted, paddle handle type, located such as to prevent accidental actuation. _____

20.3.5 Door latch striker pins – recessed such as not to protrude into the door opening area. _____

20.3.6 Door hinges – as recommended by manufacturer. _____

20.3.7 Weather stripping – automotive style. _____

20.3.8 Entry assist handles – grab handles as per NFPA standard. _____

20.4 Entrance steps – front and rear entrance steps designed for ease of entry and exit. The entrance steps shall provide a low entry step height with the bottom steps no more than 20 in. (559 mm) above ground level. Step shall be a minimum 22 in. (559 mm) wide. The step surfaces shall be non-slip material, nominal 10 in. (254 mm) deep to ensure a safe stepping area for firefighter in turnout boots. _____

20.5 Rear entrance steps – designed to allow personnel to step out of the cab in a forward position. Step surfaces shall be nominal 10 in. (254 mm) deep to ensure a safe stepping area for firefighters in turnout boots. The location of the rear entrance steps shall be such as to provide adequate floor space between the step wells and the outboard rear seats to allow seated personnel to rest their feet at floor level. _____

20.6 Step width, rear doors – 20 in. (508 mm) minimum. _____

20.6.1 Step area lights – LED recessed, side mounted light in each entrance step area. The lights shall be activated by door switches. _____

20.7 Seats – all seats shall be Seats Inc. Model 911 with grey, heavy-duty vinyl (preferred) upholstery. Modura cloth inserts must be approved by the Contract Administrator to be acceptable. _____

20.7.1 Drivers seat – conventional high-back, fully adjustable air suspension seat upholstered in grey Mordura. _____

20.7.2 Officer's seat – fully adjustable air suspension seat preferred with a Zico walkaway SCBA bracket complete with parade pad. _____

20.7.3 Air supply for the seats shall be taken from the auxiliary air reservoir. _____

20.7.4 Rear seats – three (3) forward facing seats are preferred located along the back of the cab. These rear seats shall be equipped with Zico walkaway brackets complete, 3-point mount, collision restraint straps, c/w removable backrest centre piece. _____

Note: Zico walkaway brackets for the officer's and rear seats shall be compatible with 45 minute high pressure M.S.A. air bottles and S.C.B.A. harness.

20.7.5 Seat belts – three-point, retractable type for all seats. _____

20.8 Floor covering – heavy-duty rubber floormat, or approved equivalent. _____

20.9 Insulation – full insulation and vinyl padding package for walls and ceiling. Insulation shall be non-hygroscopic, mildew proof and fire retardant. Vinyl shall be grey, heavy-duty automotive type. _____

20.9.1 Floor insulation – as required to meet HVAC needs and acceptable sound suppression requirements. _____

20.10 Headliner – grey, heavy duty vinyl with padding. _____

20.11 Windows – tinted safety sunglass for all windows including windshield. _____

20.11.1 Door windows, rear doors – fully opening roll-up windows or sliding type windows. _____

20.12 Window fans – if recommended by the manufacturer to assist in defrosting the windows, four (4) auxiliary defroster fans with metal blade guards and individual switches. Two (2) located at the front windshield and two (2) in the rear section. A master power switch for all fans shall be provided on the driver's switch panel. (Note 20.15). _____

20.13 Sun visors – full windshield interior sun visors. Two (2) swivel visors. One positioned in the front of the driver and officer. These visors swivel to provide coverage of the front door windows. A centre visor or glare reducing windshield design fills in the gap that is found between the two outer visors. _____

20.14 Mirrors, exterior – Velvac low-mount chrome finish mirrors c/w convex mirror built into the mirror head, electric defroster with driver operable remote controls. _____

20.15 Front heater and air conditioner-(Heating/Ventilating/Air Conditioning System) high output, fresh air type with multi-speed fan, controlled by the driver. Outlets shall be provided at dashboard level and in the driver's and officer's foot area to ensure occupant comfort when heat is required.

Defroster outlets shall be provided to defrost entire windshield and the drivers and officers side windows. Coolant flow (preferred) in the heater circuit shall be passively controlled by a dash mounted heat control device. The system/s shall meet or exceed the BTU's required to heat/cool the cab for the temperatures common to the City of Winnipeg, i.e., -35° C, to +35°C. _____

20.15.1 Rear heater and air conditioner shall meet or exceed the BTU requirements necessary to ensure floor area heating and cooling the rear of the cab to ensure occupant comfort and shall be separately controlled from the front of the cab. _____

Note: The Heating/Ventilation/Air Conditioning systems (front and rear) shall dehumidify the air in the defrost mode to assist in preventing the fogging or frosting of the windows due to excess humidity from wet firefighter clothing.

20.16 Dome lights – LED preferred minimum four (4) lights, two (2) in the front and two (2) in the rear portion of the cab to fully illuminate the cab interior. All lights shall be operated by door switches. Each light shall be equipped with an individual switch at the light. _____

20.17 Instrumentation – full instrumentation on a removable or flip down panel, or pull-out gauges. _____

20.17.1 Metric instrumentation shall include, but not be limited to:

a) Speedometer / odometer – metric. _____

b) Tachometer. _____

c) Oil pressure gauge. _____

d) Coolant temperature gauge. _____

e) Transmission oil temperature gauge or warning light. _____

f) Low oil pressure / high water temperature warning light(s). _____

g) Voltmeter. _____

h) Fuel level gauge. _____

i) Air reservoir pressure gauge(s). _____

j) Engine hourmeter. _____

k) Air cleaner restriction indicator gauge. _____

l) Engine oil filter bypass indicator lights. _____

m) Fuel filter bypass indicator lights. _____

n) Transmission filter bypass indicator lights if recommended. _____

20.18 Ignition switch – keyless type. _____

20.18.1 Doors – shall be keyed alike. _____

20.19 OEM engine warning system. _____

20.20 Radio – AM/FM stereo, mounted inside of dash, controlled by the driver. _____

20.21 Provision shall be made for installing data terminal and AVL system. _____

20.22 Medical Compartment – shall be lockable (interior and exterior access) with adjustable shelving. Design is dependant on cab dimensions. _____

21.0 FIRE PUMP AND ASSOCIATED EQUIPMENT

21.1 Fire pump – mid-ship factory (preferred by chassis manufacturer) mounted, single stage centrifugal fire pump with a rated capacity of 1500 (US) GPM @ 150 psi (6635 L/min @ 10.3 Bar). _____

21.1.1 Acceptable pump models – America La France
Hale
Waterous
Darley State type – _____

21.1.2 Pump overheat protection system – thermal relief valve with automatic reset, complete with panel mounted warning light, Hale TRV 120 or equal. _____

21.1.3 Relief valve system shall provide discharge and suction protection (against excess pressures), control located on pump operator's panel. _____

Note: Inlet relief valve to be plumbed to drain when pump not in use, c/w manual drain if required. _____

21.2 Priming pump – oilless vacuum pump 12-Volt electric motor. The pump motor shall be wired direct to the battery through a manual reset circuit breaker and primer switch. The circuit breaker reset shall be located adjacent to the primer switch. _____

21.2.1 Piping – all intake and discharge piping shall be sized to meet or exceed the flow capacity corresponding to the intake or discharge size, taking into account flow losses due to valves, elbows, etc. All pipe shall be corrosion resistant (stainless steel preferred). _____

21.2.2 Valves – all intake and discharge valves shall be sized to meet or exceed the flow capacity corresponding to the intake or discharge size. 4 in. valves may be either gate or piston type with 30° elbow, c/w pressure relief valve. Valves 3 in. (76 mm) or larger shall be slow opening type, meeting NFPA requirements. Valves less than 3 in. (76 mm) shall be manually controlled. Valves shall be Akron or Hale ball valves. Unless otherwise specified, all valves shall be controlled from the pump operator's panel. Minimum valve sizes at various locations are specified herein. _____

21.2.3 Suction relief control valve – shall be pressure governed. _____

21.3 Pump intakes – intakes shall be provided as follows: _____

INTAKE LOCATION	QTY	SIZE	THREAD TYPE	GATED
Left Side Pump Panel	1	6 in. (152 mm)	National Standard (Male)	Yes
Right Side Pump Panel	1	6 in. (152 mm)	National Standard (Male)	Yes
Tank-to-Pump Line	1	3 in. (76 mm)	N/A	Yes
Right Side Pump Panel	1	4 in. (102mm)	Storz	Yes

21.3.1 The 6 in. (152 mm) intakes shall be located to provide sufficient clearance for hard suction lines. The left intake shall be equipped with gate and strainer, removable strainers and 6 in. to 4 in. storz reducer and a manual drain between cap and gate. This reducer shall have T-handles at the 6 in. female end and a swept 30° storz c/w cap. Two (2) 6 in. blind caps with T-handles shall also be supplied. _____

Note: Storz cap shall be attached to all storz inlets and outlets with vinyl coated, stainless steel cables or an approved alternative.

21.3.2 The tank-to-pump line shall be insulated from the water tank to the pump enclosure. A flexible or victaulic coupling in the line shall prevent transmission of pump vibrations to the tank. _____

External tank fill intake – intake shall be provided as follows:

INTAKE LOCATION	QTY	SIZE	THREAD TYPE	GATED
Left Side Pump Panel	1	2 ½ in. (64 mm)	Western Canada (Female)	Yes

21.3.3 The intake shall be plumbed into the pump-to-tank fill line such that the tank can be filled from an external source without flooding the pump. The valve for the intake line shall be a manually controlled Akron or Hale ball valve with the control handle for the valve located at the pump panel adjacent to the intake. The intake shall be labelled “tank fill” and shall be equipped with a cap with a vinyl coated, stainless steel cable or an approved alternative. _____

21.4 Pump discharge outlets – discharge outlets shall be provided as follows: _____

DISCHARGE OUTLET LOCATION	QTY	SIZE	THREAD TYPE	GATED
Right Side Pump Panel	1	4 in. (102 mm)	Storz	Yes
Right Side Pump Panel	1	2½ in (64 mm)	WCT (Male)	Yes
Rear, Left	1	4 in. (102 mm)	Storz	Yes
Rear, Right	1	2½ in (64 mm)	WCT (Male)	Yes
Transverse (Cross Lay) Area	2	1½ in. (38 mm)	National Standard (Male)	Yes
Front bumper	1	1½ in. (38 mm)	National Standard (Male)	Yes
Rearward of Transverse (Deluge)	1	4 in. (102 mm)	National Standard (Male)	Yes
Pump-to-Tank Fill Line	1	1½ in. (38 mm)	National Standard (Male)	Yes

21.4.1 The piping for the right and rear 4 in. (102 mm). Storz discharge outlets

sized to achieve rated flow capacity of outlet. State. _____

21.4.2 The valves for the right and rear 4 in. (102 mm). Storz discharge outlets sized to achieve rated flow capacity of outlet. State. _____

21.4.3 The piping for the transverse and front outlet shall be 2 in. (51 mm) minimum. _____

21.4.4 The valves for the transverse and front outlet shall be 2 in. (51 mm) minimum. _____

21.4.5 The rear discharge outlets shall be located suitable for pre-connected 4 in. (102 mm) and 2½ in. (64 mm) hose. The piping shall be routed outside the water tank. The outlet height shall be suitable for use from ground level. The outlets shall be equipped with 30° sweep 4 in. storz elbow and cap, c/w automatic drain valves. _____

21.4.6 The 1½ in. (38 mm) discharge outlets in the transverse (crosslay) area shall be equipped with chicksan swivel joints located in the forward crosslay area, partially recessed in the centre of the transverse floor such as to prevent the fire hose from kinking when pulled in either direction. The swivel joints shall lay flat and shall not swivel below floor level. _____

21.4.7 The vertical discharge outlet shall be located immediately to the rear of the transverse hose bed. The outlet shall be adequately sized for use with the monitor specified herein (see 21.6). _____

21.5 Monitor – Akron electric monitor with remote control Stream MasterAkromatic 1250 nozzle, mounted on the vertical discharge outlet with 360° rotation without hitting the cab with the water steam. The remote control for the monitor shall be located on the pump operator's panel and supplied with a 15 ft. cord. _____

21.6 Drain valves – individual or ganged manual ball valve, located in the lowest section of all discharge and intake piping that is not equipped with automatic drains and in the pump to completely drain the entire system. Drain valves shall be minimum ¾ in. (19 mm) diameter. The controls for all manual drains valves shall be located near the drain valve outlet and shall be appropriately labelled. _____

21.7 Pump compartment – fully enclosed on all sides including the bottom. The bottom portion of the enclosure shall be a removable, bolt-on, 3/16 in. (5 mm) aluminium pan constructed with a 2 piece loose fitted aluminium panel. All discharge, intake and drain valves in the pump area shall be located inside the pump compartment. _____

21.7.1 Swing-out pump panels – the right and left side pump panels shall be minimum 14 ga. stainless steel, designed to permit easy removal without disassembly of any pumps, gauges, controls, inlets, outlets, drains, lighting or electrical componentry. Trim plates, located behind the main pump panels, shall be used to provide a well sealed pump panel and a clean appearance. The trim plates shall be easily removed when the main pump panel is removed. _____

21.7.2 Access panel – a large access panel to the pump compartment shall be provided. The panel shall be easily removable and permit sufficient

access to pump and valving for repairs. _____

21.8 Pump compartment heater – shall be diesel fired heaters, suitable to prevent freezing of the pump and plumbing. The heater shall be located to be protected from damage and water spray. The heater shall be thermostatically controlled and shall be equipped with an on/off switch, located for convenient operation on the pump operator's panel. _____

22.0 PUMP DRIVE

22.1 The pump shall be driven via a split shaft PTO with a single speed transfer case. _____

- State make and model of transfer case being bid. _____

22.2 Shifting mechanism – air or electric powered shift mechanism with a manual override. _____

- State details of shift mechanism. _____

22.2.1 Shift control – located in the cab for operation from the driver's position. The shift control lever shall have a positive locking feature or protective cover to prevent accidental disengagement. _____

22.2.2 Warning lights – two warning lights at the shift control and one light at the pump operator's panel, in accordance with N.F.P.A. requirements, shall indicate when the transfer case shift to pump operation has been completed and the transmission is in pump gear. _____

23.0 PUMP OPERATOR'S PANEL

23.1 Location – left hand side. The control panel shall be located behind a full length and width roll-up door. The recessed LED lighting shall illuminate the entire pump panel without causing glare for the operator. _____

23.2 The pump operator's panel shall contain the following controls, gauges, warning lights, etc.:

a) Pump drive engagement light. _____

b) Pump overheat warning light. _____

c) Class I or Akron pressure governor or equal capable of automatically maintaining a desired preset discharge pressure within a range of 0-2756 kPa. Logic for the governor system shall be incorporated into the electronic control module. The system shall be designed so that it can only be operated after the fire pump has been engaged and the vehicle parking brake set. A pump cavitation protection feature shall also be tied into the governor system. An engine remote throttle feature to be part of this system allowing the operator to select engine speed from low to high idle when not pumping. _____

d) Transmission oil temperature gauge with warning light and buzzer. _____

e) Priming control. _____

f) Water tank level gauge, Akron or Class I digital tank level gauge. _____

g) Combination gauge: master discharge and intake pressure gauge, and flow gauges. Akron or Class 1 preferred. _____

h) Valve controls – control handles for operation of each gated pump intake and discharge outlet. Manually operated valves shall have lock type control handles with linkage connection to valves. _____

i) Discharge combination pressure gauge and flow meters. An analogue pressure gauge and flow meter (approved by the Department contact) shall be provided for each discharge outlet excluding the pump-to-tank fill line and shall be located above the respective control valve. The approved gauges/meters shall be calibrated in accordance with the manufacturer's recommendation. _____

j) Foam system controls and display. _____

k) Foam tank level gauge – Akron or Class I, digital tank level gauge. _____

l) PTO shift control display. _____

m) Monitor remote controls. _____

n) Heater controls – for pump compartment heater. _____

23.3 Panel plate – stainless steel plate with slots for the valve control handles. The slots shall be fully sealed using flexible rubber boots. _____

23.4 Name plates – colour coded, metal name plates, block lettered in English, for all controls, gauges, warning lights, etc.. _____

23.5 ULC or equivalent, test plate – located on or immediately above the pump operator's panel. The plate shall show discharge flows and pressures in SI units (L/min, kPa). _____

23.6 Bidders shall include a diagram illustrating the control panel layout. _____

24.0 <u>WATER TANK</u>

24.1 Construction – fibreglass or polypropylene construction. _____

24.1.1 Baffles – longitudinal and transverse baffles as recommended by the manufacturer to prevent excessive water movement and reaction. _____

24.2 Capacity – approximately 800 Imp. gallons (3636 L). _____

24.3 Fill tower-top access filler, easily identified and utilized by the user. The top of the fill tower shall be approximately even with the top of the apparatus body side. The fill tower cover shall be clearly labelled "water only". _____

24.3.1 Overflow vent – located to drain directly to ground, clear of any chassis and driveline components. _____

24.4 Sump – located in the front of the tank such as to allow use or draining of the total tank capacity. The drain function shall be activated from the left side at the rub rail. _____

24.4.1 Outlet fitting – 3 in. (76 mm) NPT female flange fitting for the tank to pump line, located in the front of the sump. An anti-swirl device shall be provided on the inside of the sump at the outlet. _____

24.5 Fill line fitting – 2½ in. (64 mm) NPT female fitting for the pump-to-tank fill line. A deflector shield inside the tank shall direct the water flow when filling. _____

24.6 Mounting – the tank shall be securely mounted in such a manner as to allow the tank to float sufficiently to prevent damage due to chassis frame movement including twisting. The tank shall be supported along its entire perimeter by a steel cradle bolted to the chassis frame. The cradle shall be lined with ¼ in. (6 mm) thick rubber at all points of contact with the tank. _____

24.7 Lift eyes – threaded bosses for attaching lift eyes for removal of the tank shall be built into the top of the tank. _____

24.8 Water tank warranty – 20-year minimum. _____

25.0 FOAM SYSTEM

25.1 Foam system – electronic, direct injection, foam concentrate proportioning system with Class "A" foam capability, Foam Pro System 2002 preferred. State make and model. _____

25.2 Foam system is to be installed as per manufacturer's instruction and must be capable of supplying the lines indicated in 25.5. _____

25.3 Foam injector – located in the outlet manifold to supply foam concentrate to both 1½ in. (38mm) crosslays, trash line and to the 2½ in. (64mm) rear outlet. _____

25.4 Controller – digital display/controller located at the pump operator's panel. _____

25.5 Foam tank – minimum 30 Imp. gallons (136 L) capacity tank, designed specifically for foam system use. The foam tank shall be securely mounted or an integral part of the water tank. _____

25.6 Fill tower – top access filler, located adjacent to the water tank fill tower. The fill cover shall be equipped with a latch, easily operated by a mitted hand, and may be held in the open position without the use of a prop rod. The top of the fill tower shall be even with the water tank fill tower. The fill tower cover shall be clearly labelled "A FOAM ONLY" and shall positively seal when closed. A fill line inlet for the remote fill system shall be provided. _____

25.7 Fill tower funnel – required to permit filling the "A" foam tank from the top with 5 gallon pails, without over splash. The funnel shall be stored beside the fill tower. _____

25.8 Remote fill system – pumping system for filling the foam tank from ground

level. The system shall have a pumping capacity of approximately 12 (US) gallons (45 L/min) and shall be capable of drafting foam solution directly from 5 gallon pails, 55 gallon drums or any other large foam tank. The remote tank fill inlet shall enter the foam tank at the bottom of the foam tank. All components of the system shall be compatible with Class "A" foam solutions. _____

25.9 Quick connect fitting – located at the right side pump panel, for attachment of the remote fill hose. _____

25.10 Remote fill hose – 72 in. (1829 mm) hose with quick connect end, located next to the quick connect fittings behind a glomb lock door. The hose shall be stored in a storage tube that slopes down and is open at the lowest point. _____

26.0 APPARATUS BODY

26.1 Type – Rescue style, heavy-duty apparatus body, stainless steel, 3003-H14 alloy, 5083-H321 marine grade aluminium or equivalent. State material. _____

26.2 Rubrail – extruded aluminium rubrail, bolted in place and located along the lower edge of the body, both sides. _____

26.2.1 All compartment floors and shelves shall be 3/16 in. (5 mm) marine grade aluminium, minimum, welded continuous. _____

26.3 Insulating material to prevent galvanic corrosion shall be provided at all possible areas of contact between aluminium and steel. The insulation material used shall be nonporous. _____

26.4 Rubrail – extruded aluminium rubrail, bolted in place and located along the lower edge of the body, both sides. _____

26.5 Drip mouldings – located above all compartment door openings. _____

26.6 Storage compartments – located along each side and rear of the body as shown in appendix. The storage compartments shall provide a combined interior volume of approximately 155 ft^3 (4.39 m^3) with compartment sizing approximately as listed below: _____

L1, L3, R1 and R3 - 34" W x 68" H x 26" D _____
R2 - 56" W x 38" H x 14" D _____
L2 - 56" W x 38" H x 26" D _____
Rear E1 - 42" W x 50" H x 30" D _____

Note: Bidders shall include a body layout drawing showing compartment locations and dimensions. All measurements are approximate and are not intended to preclude manufacturer recommendations. _____

26.6.1 Compartment design – all compartments shall have louvered vents for ventilation. All compartments shall have sweep-out style compartment bottoms with the front edge lower than the floor level such that the bottom edge of the compartment door when closed is approximately 1 in. (25 mm) below the compartment floor level. _____

26.6.2 Compartment doors – Amdor roll-up doors preferred lock/lifting bars c/w door ajar warning circuit. All compartment doors shall have anodized aluminium slats. _____

26.6.2.1 "Door ajar" warning circuit to indicate an open storage compartment door with a nominal 2 in. (51 mm) diameter flashing red warning light located in the cab. _____

26.6.3 Compartment lights – adequate LED lighting in each compartment. Compartments with shelves and/or partitions shall be equipped with a separate light in each storage area such that the entire compartment interior is illuminated. The lights in each compartment shall be activated by the opening of the compartment door. A master switch for the compartment light circuit shall be located in the cab for operation by the driver. _____

26.6.4 Shelves – all compartment shelves shall be 3/16 in. (5 mm) aluminium and shall cover the full width of the compartment. Shelves shall be lined with an interlocking matting, dri-deck or equal. _____

26.6.5 Slide-out trays – all slide-out trays shall be 3/16 in. (5 mm) aluminium with heavy-duty steel sliders, with ball bearing rollers capable of supporting a minimum capacity of 500 lbs.. The slide-out trays shall have paddle-handle type latches with dual point locks or dual T-handle type latches. The trays shall lock in the open and closed positions. _____

26.6.6 Left side, front compartment (L1) – equipped with a slide-tool board to accommodate shovels, wrenches, axes pry bars and other tools _____

26.6.7 Left side, horizontal compartment (L2) – equipped with one (1) adjustable shelf. _____

26.6.8 Left side, rear compartment (L3) – left side, front compartment (L1) – equipped with a slide-tool board to accommodate a RamFan GF-165 smoke ventilator (see 31.1) in the lower portion of the compartment. The smoke ventilator shall be securely mounted but easily removed without the use of tools. The slide-out tray shall be capable of sliding fully out of the compartment. A fixed shelf shall be mounted at mid-height in the compartment. A vertical divider shall be mounted below the fixed shelf to partition the smoke extractor storage are from the remaining area in the lower portion of the compartment Right side, front compartment (R1) – equipped with one (1) adjustable shelf. _____

26.6.9 Right side, front compartment (R1) – insulated and heated. _____

26.6.10 Right side, rear compartment (R2) – equipped with one (1) adjustable shelf. _____

26.7 Ladder storage – over the hose bed hydraulic side mount, capable of lowering the ladders to approximately 60 in. from the ground. The hydraulic system is to be electrically activated and self seating, with structural support directly to the apparatus of the body mounting structure. A safety transmission interlock system required. _____

26.8 Ladders shall be:

One (1) 3 section, 30 ft..
One (1) 14 ft. roof ladder.

26.8.1 Compartment ladder/pike pole storage – rear access within the body below the hose bed via slam locking doors.

Ladders shall be:

One (1) folding ladder.
One (1) combination ladder 9X9.
Three (3) pike poles.

Note: See sections 31.2, 31.3.

26.8.2 SCBA storage – minimum 4 individual compartments required to house a minimum of forty-five (45) high pressure SCBA cylinders. The compartments shall be protected with a slam lock weather tight door/s. State.

26.9 Rear step – NFPA compliant 18 in. (457 mm) deep, full width rear step area. The step height shall be maximum 22 in. (559 mm) above ground level. Step surfaces shall be non-slip, enclosed on the underside. Drain opening shall be provided to facilitate cleaning of the non-slip surfaces.

26.10 Hose bed access steps – located to allow personnel to climb from the rear step onto the hose bed. Step surfaces shall be aluminium gripstrut.

26.11 Handrails – NFPA handrails, located to assist in access to hosebed.

Note: Proposed handrail and step dimensions and locations shall be submitted to the City within 48 hours of the request of the Contract Administrator.

26.12 Stanchions – located at the upper rear corners of the hose bed for mounting warning and deck lights.

26.13 Wheel wells – equipped with full liners.

26.14 Checkerplate – the rear of the apparatus body, the front corners and the area immediately above the wheel wells shall be covered with polished aluminium checkerplate.

27.0 HOSE BED

27.1 All hose bed dividers shall run longitudinally.

27.1.1 The hose bed shall have a flat bottom of removable vinyl or aluminium slats, except where otherwise specified, and a smooth interior, free of any projections such as bolts, brackets, etc., which may damage the fire hose.

27.1.2 Hose bed loading (floor) height – maximum 84 in. (2134 mm) above ground level.

27.2 The hose bed shall have a flat bottom of removable vinyl or aluminium slats and a smooth interior free of any projections such as bolts, brackets, etc., which may damage the fire hose. The hose bed dividers shall be

adjustable partitions running full length front to back.

a) Space on the left for 1000 ft. of 4 in. (102 mm) high volume rubber covered fire hose.

b) Space on the right-centre for 800 ft. of 2½ in. (64 mm) double jacket, rubber lined fire hose.

c) Space on the right for 200 ft. of 2½ in. (64 mm) double jacket, pre-connected rubber lined fire hose.

d) Centre walkway -slip resistant walkway required from the rear of the apparatus to the front of the hose bed (at the water and foam fill towers) nominal width 24 in. (610 mm) wide.

Note: Fire hose shall not be supplied with the apparatus (except as listed in 31.17).

27.2.1 Grab handles – required at the rear of the centre walkway to the left and right side. The handles shall allow for a clear walkway and shall not interfere with the hose.

27.3 Hose bed cover – heavy duty tarps to completely cover the hose beds and not interfere with hose deployment. The cover/s shall be durable waterproof and flame resistant material (preferably red in colour). The cover shall be able to be secured in the open or covered position and remain in place under severe conditions.

28.0 TRANSVERSE (CROSSLAY) AREA

28.1 The transverse (crosslay) area shall be located ahead of the hose bed and deluge standpipe.

28.1.1 The transverse area shall be covered by checkerplate aluminium panels (lids), hinged at the front. A rubber ball and socket, friction fit type locking device shall be used to secure each lid in the down position. The lids shall not interfere with the operation of the deluge gun or fill tower lids when in an open or closed position.

28.2 Hose capacity – the transverse area shall provide sufficient space for two (2) crosslays of 200 ft. (4 x 15 m) each, of 1¾ in. (44 mm) double jacket, rubber lined fire hose. A centre divider shall separate the two (2) crosslays. The forward crosslay shall be pre-connected to the discharge outlet in the centre of the transverse floor (see 21.7). The transverse shall be large enough to hold the specified hose and pistol grip-nozzles.

Note: WFPS would consider replacing the rear 2½ in. pre-connected hoselay with one 2½ in. crosslay immediately to the rear of the two 1¾ in. crosslays.

28.3 Transverse floor – sloped approximately 5° downward towards the centre from each side, and lined with removable vinyl or aluminium slats.

28.4 Guide rollers – full length, stainless steel rollers mounted along the bottom and sides of the transverse opening on each side of the apparatus.

28.5 Running boards – running board/step located along the bottom of the pump panel on the left and right side of the apparatus for access to the crosslay. The running boards shall be minimum 10 in. (254 mm) deep and shall not protrude beyond the width of the apparatus body. The outer edges of the running boards shall have extruded aluminium rubrails matching the body rubrails. The step surfaces shall be non-slip, enclosed on the underside. Drain openings shall be provided to facilitate cleaning of the non-slip surfaces. _____

28.5.1 Flip out steps extension required on right side, designed to facilitate loading and removal of crosslay hose. A red dash mounted warning LED light shall indicate when a step is not in the stowed position. _____

28.5.2 Handrails – aluminium or stainless steel handrails with rubber grip inserts, located on the left side, right side and below the crosslay area, on each side of the apparatus. _____

29.0 ELECTRICAL SYSTEMS, GENERAL

29.1 Electrical wiring for all 12 volt electrical circuits shall be in accordance with SAE standard J1292. _____

29.1.1 All wiring shall be in pre-engineered harnesses with weatherproof, guided pinsnap-together connectors. Each circuit shall be colour coded and marked the entire length of the wire with easily read numbers and/or letters for identification. Wires shall be minimum 16 ga., multi-strand copper with cross-linked polyethylene insulation. _____

29.1.2 Where crimp-on type electrical connectors are necessary, the connectors shall be fastened to the wiring, pull tested to 40 lbs., then sealed using heat shrink tubing. _____

29.1.3 Any soldered connections shall be performed using flux core solder, then sealed using heat shrink tubing. Acid and/or acid core solder shall not be used. _____

29.1.4 All wiring shall be properly secured and routed. All holes required for routing shall be grommetted and sealed as required. _____

29.2 Circuit breakers shall be used in lieu of fuses for all circuits requiring overload protection (reset type circuit breakers preferred). _____

29.3 All circuit breakers and relays shall be located behind quick removable panels, located to be readily accessible for servicing. All circuit breakers and relays shall be labelled to indicate their function. _____

29.4 The electrical distribution panels for the apparatus body shall be located in an easily accessible location for the maintenance people to access. The panels shall have a removable weather tight front cover. The dedicated ground cable shall have a ground terminal in these panels with sufficient connection point available for all circuits. _____

30.0 VEHICLE LIGHTING AND WARNING EQUIPMENT

30.1 The apparatus shall be equipped with all vehicle lighting equipment

required under the Canada Motor Vehicle Safety Act and the Manitoba Highway Traffic Act. _____

30.2 The apparatus shall have a certified system of optical warning devices (**LED preferred**) that meets or exceeds the requirements of NFPA 1901 (Current Edition). _____

Note: Bidders shall include a list of all optical warning devices, and their respective mounting locations, being supplied on the apparatus.

30.2.1 Light bar (LED preferred) – clear lens and red filters, located on the front of the cab roof. Individual switches shall be provided for the alley lights if included in the light bar. _____

30.2.2 Rear warning lights – as per NFPA 1901 Standards (current edition). _____

30.2.3 Red flashing lights front two (2). _____

30.2.4 Red flashing lights rear two (2). _____

30.2.5 Intersection lights – two (2) in the side at the front bumper area, two (2) in the rear wheel well area and two (2) in the rear tail board area. _____

30.2.6 Arrow stick – c/w controller. The arrow stick shall be mounted in the rear of the body below the hose bed. _____

30.2.7 Scene lights – located to provide adequate side and rear scene lighting. _____

30.3 Load management system – an automatic electrical load management system shall be provided. State make and model. _____

30.4 Taillights – minimum 6 in. (152 mm) diameter lights. _____

30.5 Turn signals – as per C.M.V.S.S. plus side-mounted turn signals located approximately midway of vehicle, as per NFPA 1901 (current edition). _____

30.6 Wig wags – alternately flashing headlights operating on high beam only. _____

30.7 Deck lights – two (2) swivel mounted deck lights, located on the stanchions above the place of the rear beacons. _____

30.8 Siren – siren system with two (2) speakers with mounted in the front bumper, spaced as wide apart as possible. _____

30.9 Warning lights and siren controller. The controller shall be mounted with the arrow stick controller mounted to the right of the driver for primary operation by the driver from the normal seated position. The officer's position shall be equipped with a siren tone control switch. This switch when activated shall only be able to change siren tones of siren wail, yelp and electronic air horn. It will not select stand by or on/off selection. The switch position shall be to the left of the officer. _____

30.10 Air horns – two (2) air horns mounted in the front bumper. The air horns shall be operable from the driver's position via the steering wheel horn activator and from the officer's position via a tow switch. _____

30.11 Back-up alarm – electronic, self-adjusting (87-112 dB) type. _____

30.12 Spotlight – 12-Volt, heavy duty hand held spotlight with momentary switch, dash mounted in the officer area. _____

31.0 FIRE FIGHTING EQUIPMENT

The following equipment shall be supplied as part of the apparatus and shall be mounted where applicable. Items not available (**in section 31 for Item 1 on Form B: Prices**) at time of delivery, shall be supplied and installed **within 60 days** of the award of the Contract. _____

31.1 Smoke ventilator – one (1) RamFan GF-165 positive pressure ventilator with 5.5 H.P. (4.1 kW) Honda engine with exhaust extension (no substitutes). The smoke ventilator shall be mounted in compartment L3. _____

(Ram Fan Corporation, 2746 Via Orange Way, Spring Valley, California, 91978, Tel: (619) 670-9590).

31.2 Ground Ladders:

a) One (1) 30 ft. (9.1 m) 3-section extension ladder, Duo-Safety 1200 Series. _____

b) One (1) 14 ft. (4.3 m) roof ladder with folding roof hooks, Duo-Safety 1200 Series. _____

c) One (1) 10 ft. (3.0 m) folding (attic) ladder, Duo-Safety 585-A Series. _____

d) One (1) 9 ft. x 9 ft. (2.7 m x 2.7 m) combination extension and trestle ladder, Duo-Safety 300-A Series. _____

31.3 Pike Poles:

a) One (1) 6 ft. (1.8 m) fibreglass pike pole with ”D” handle. _____

b) One (1) 8 ft. (2.4 m) pike pole with fibreglass handle. _____

c) One (1) 4 ft. (1.3 m) fibreglass pike pole with “D” handle. _____

31.4 Axes – two (2) 6 lb. (2.7 kg) one flathead and one pickhead fire axes with fibreglass handles. _____

31.4.1 Axe mounting brackets – Zico or equal, required for each axe. Bracket locations to be determined. _____

31.5 Sledgehammer – one (1) 10 lb. (4.5 kg) sledgehammer with fibreglass handle. _____

31.5.1 Sledgehammer mounting bracket – Zico or equal. Bracket location to be determined. _____

31.6 Prybars:

a) One (1) 50 in. (1270 mm) crow bar). _____

b) One (1) Kelly tool. _____

c) One (1) Halligan Tool and flat head axe c/w strap. _____

31.6.1 Prybar mounting brackets – Zico or equal. Bracket locations to be determined. _____

31.7 Shovels:

a) One (1) square mouth shovel. _____

b) Two (2) No. 10 scoop shovels. _____

31.7.1 Shovel mounting brackets – Zico or equal. Brackets to be mounted in the compartment L2 on the upper shelf. _____

31.8 Salvage Covers – four (4), approx. size 14 ft. x 16 ft. (4.3 m x 4.9 m), made from no. 6 yellow Herculite fabric or equivalent. State. _____

31.9 Extinguishers: _____

a) One (1) 2½ gal. (11 L) stainless steel pressurized water extinguisher. _____

b) One (1) 15 lb. (6.8 kg) BC rated CO_2 extinguisher. _____

c) One (1) 20 lb. (9.1 kg) BC rated pressurized dry chemical extinguisher. _____

31.9.1 Extinguisher mounting brackets – Zico or equal. Bracket locations to be determined. _____

31.10 Door opener – one (1) hydraulic powered door opener with hand pump, prybar, hammer and carry bag, Rabbit Tool by Hurst Jaws of Life (no substitutes). _____

31.11 Nozzles:

a) Two (2) 2½ in. (64 mm) Akron Model 4825 nozzles. _____

b) One (1) 2½ in. (64 mm) Akron Model 4825 nozzle sized at 75 psi / 250 gpm. _____

c) One (1) 2½ in. (64 mm) Akron Model 4826 nozzle sized at 75 psi / 250 gpm. _____

d) Two (2) 1½ in (38 mm) Akron Model 4820 Assault nozzle with pistol grip sized at 50 psi / 150 gpm. _____

e) Two (2) 1½ in (38 mm) Akron Model 1720 Turbojet nozzles with pistol grip at 75 psi. _____

f) One (1) 1½ in. (38 mm) nozzle, Akron style 4815, gallonage and pressure to be determined. _____

g) One (1) 1½ in. (38 mm) nozzle, Akron style 4815, c/w foam horn. _____

h) One Akron 777 quick attack foam tube. _____

i) One (1) 2½ in. (64 mm) quad stacked deluge tip compatible with the monitor (see 21.5), complete with lug key. _____

31.11.1 Nozzle mounting brackets – neoprene rubber, Zico or equal, required for each nozzle. Bracket locations to be determined. _____

31.12 Valves:

a) One (1) light weight, ball valve water thief, Akron style 1573, 2½ in. (64 mm) female swivel Western Canada thread x one 2½ in. (64 mm) male Western Canada thread and two 1½ in. (38 mm) male National pipe thread, with protective caps on male threads. _____

b) One (1) 2½ in. (64 mm) hydrant gate, Akron style 2285, Western Canada thread. _____

c) One Akron 4" stortz to 2 x 2½ WCT male valve c/w thread protectors and mount. _____

31.12.1 Valve mounting brackets – Zico AWG or equal, required for each valve. Bracket locations to be determined. _____

31.13 Wye – one (1) 2½ in. (64 mm) WCT x two (2) 1½ in. (38 mm) male Western Canada thread wye, Pyrolite, with protective caps on male threads. _____

31.14 Adapters:

a) One (1) 2½ in. (64 mm) double male adapters, Akron style 336 – Pyrolite, Western Canada thread. _____

b) One (1) 2½ in. (64 mm) double female swivel adapters, Akron style 335 – Pyrolite, Western Canada thread. _____

c) Two (2) 4 in. (102 mm) Storz x 2½ in. (64 mm) male Western Canada thread adapter, with protective cap on male thread. _____

d) Two (2) 4 in. (102 mm) Storz x 2½ in. (64 mm) female swivel Western Canada thread x 30°, 4 in. (102 mm) Storz adapter. _____

e) Two (2) 2½ in. (64 mm) Western Canada thread male to 1½ in. (38 mm) NPT female adapter, Pyrolite or brass. _____

f) One 6" hydrant to 4" stortz swivel hydrant adaptor. _____

31.14.1 Adapter mounting brackets – Zico Quic-Mount or equal. Bracket locations to be determined. _____

31.15 Portable monitor – demountable, portable monitor with tip-over protection, Crossfire TFT or equal, complete with 4 in. (102 mm) single Storz inlet, 2499 quad stacked tips and stream straightener (minimum 18 in. (457 mm) long). _____

Note: Stream straightener and quad stacked tips shall be adaptable to

Akron monitor (see 21.6). _____

31.16.1 Portable monitor compartment storage bracket – required. Mounting brackets shall also be required for the stream straightener and tips. Bracket locations to be determined. _____

(Task Force Tips Inc., 2800 E. Evans Avenue, Valparaiso, Indiana, 46383, Tel: (219) 462-6161).

31.17 Hose – 11 lengths of 1¾ in. hose yellow in colour coupled with 1½ in. NSPT (Mercedes Aquaflow Plus preferred) one (1) 75 ft. 1¾ in. rubber trash line yellow in colour (Mercedes Futureline preferred). _____

31.18 Two-way radio – one (1) Motorola MCS2000 (UHG conventional trunkable and DVP capable) mobile radio, complete with a 5-year warranty (Part #ACW975 AB), 17' remote mount cable (Part #W496) and keylock mount (Part #HLN 6205 A). _____

Note: Mobile radio and accessories to be shipped loose.

31.18.1 The pump operator's panel shall be jack wired for a headset. _____

31.19 Stihl Rescue Saw c/w one (1) 12 in. carbide blade, one (1) 12 in. metal blade and one (1) 12 in. concrete blade. _____

31.20 Lennox Hacksaw c/w blade. _____

31.21 Four (4) Portable 500 Watt halogen flood lamps. _____

31.22 One (1) set of wheel chocks. _____

31.23 30 in. bolt cutter. _____

31.24 Two (2) Akron wrench holders c/w keys. _____

31.25 One (1) hose clamp. _____

31.26 3500 Watt portable Honda Power Generator, complete with 1 x 100 ft heavy duty 12-gauge 3-wire cord, 4 x 50 ft. 14-gauge 3-wire cords with outdoor covering and ground-fault junction box with waterproof ends. _____

31.27 Four (4) Energizer Hard Case Lanterns. _____

31.28 One (1) Hand Held Thermal Imaging Camera and truck mount with charger. _____

32.0 SERVICEABILITY

32.1 All components of the apparatus requiring regular scheduled servicing or lubrication shall be easily accessible. _____

32.2 The design and construction of the apparatus shall be such that the removal of drive train components including, but not limited to, the engine, transmission and transfer case, can be accomplished without dismantling the apparatus body. _____

33.0 COLOUR

33.1 The apparatus shall be painted as follows: _____

33.1.1 Cab – painted two tone, with bottom half red to match Dupont C8053U (Candy Apple Red) and top half white to match Dupont DU 1300 (Super White), using a polyurethane enamel paint, Dupont Imron or equal. _____

33.1.2 Apparatus body – painted red to match the bottom half of the cab. _____

33.1.3 Apparatus body compartments, interior – painted with a light grey, scratch resistant, automotive grade paint. _____

33.1.4 Chassis frame, axles, etc. – painted using smooth black corrosion resistant paint. _____

33.2 All paint shall be applied in accordance with the paint manufacturer's recommendations. All surfaces shall be properly cleaned, prepared and primed with a suitable primer prior to painting. Painting shall have been performed in an atmosphere controlled spray booth. _____

33.3 The cab and apparatus body shall have been painted with all trim and hardware removed. All mounting holes shall have been drilled and deburred and nutserts shall be installed in blind holes prior to painting. _____

33.3.1 Any caulking of body seams shall be performed prior to painting. Caulking material shall be of the highest Industry standards. _____

33.3.2 The apparatus body roll-up doors shall be anodized. (See 26.6.2). _____

33.4 Reflective striping – minimum 4 in. (102 mm), white reflective striping, applied to the front, sides and rear of the apparatus in accordance with NFPA requirements for reflective striping. _____

33.4.1 The reflective striping on the cab rear entrance doors shall incorporate the Fire Department's stylized "WFPS" logo. (A diagram of the logo shall be provided to the Contractor by the City). _____

33.5 The cab interior shall be charcoal grey. _____

34.0 NOISE LEVELS

34.1 The sound level in the cab at all seated positions shall not exceed 80 dB(A), measured in accordance with SAE J336, with the apparatus travelling at any speed up to governed speed with the sirens off and doors and windows closed. _____

- State the sound level in the cab. _____

35.0 DELIVERY

35.1 All All equipment shall be delivered F.O.B., freight prepaid, to the Fleet Management Agency, 770 Ross Avenue, Winnipeg, Manitoba. **The demo units shall arrive no later than forty-five (45) calendar days from the date of the award of the contract. The custom build units shall be delivered no later than two-hundred and eighty (280)**

calendar days from the date of the award of the contract.

A Manitoba Vehicle Safety Inspection shall be performed on the apparatus prior to delivery. A valid decal shall be displayed and a safety certificate shall be provided.

36.0 MANUALS

36.1 Manuals supplied under this contract shall be in English and shall be specifically for the apparatus supplied. General purpose manuals are not acceptable. The manuals shall cover the complete equipment including all components thereof.

The following manuals shall be supplied under this contract. The manuals shall be supplied at the time of delivery of the apparatus.

a) Operator's manuals – two (2) sets in total.

b) Parts and service manuals, including detailed wiring schematics and preventative maintenance schedules – two (2) sets in total.

Note: The wiring schematics shall identify the location of all relays, switches, etc.

36.2 Diagnostic tools: Prolink, modem, diagnostic tool, complete with software to diagnose the supplied engine, Allison transmission and Rockwell Wabco ABS braking system – one (1) tool in total.

37.0 TRAINING

37.1 The Supplier shall provide at their expense, operational and maintenance training by qualified staff for Winnipeg Fire Paramedic Service Mechanical Services Branch and Academy personnel. The training shall be conducted in separate sessions for each group of personnel. Each session shall be sufficient in duration and shall provide adequate familiarization and orientation on the apparatus, to the satisfaction of the Contract Administrator. The training shall be conducted in Winnipeg at a location to be designated by the Contract Administrator.

- State if VHS video tape training aides on the type of apparatus being offered are available.

38.0 PERFORMANCE RELIABILITY

38.1 The responsibility for the design of the complete apparatus, its performance and reliability shall rest upon the Contractor.

38.2 The term *"repeated failures"* as determined by the Chief or designate, as used herein is defined to mean that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the apparatus inoperative, or requiring repeated shop correction, service and/or replacement during the warranty period applicable for said component, subassembly, or assembly. Minor items or ordinary service adjustments are not included, or considered under the scope of "repeated failures", as well as other factors, such as operational damage due to accidents, misuse or lack of proper maintenance, service

and lubrication attention by not following the manufacturer's preventative maintenance schedule.

38.2.1 Where the apparatus develops "repeated failures" in service, the Contractor shall make any necessary engineering changes, repairs, alterations or modifications in order to guarantee reliability of performance, at no cost to the City with a reapplied, full warranty.

39.0 WARRANTY

39.1 Further to GC.10.01, the warranty on the apparatus shall include 100% replacement parts and labour at no cost to the City and shall cover the complete equipment and all parts thereof against any defects of workmanship, construction and materials for three (3) years from the effective date of the Certificate of Total Performance except as detailed in 24.8.

39.1.1 A new three (3) year warranty period shall be provided for any article that is repaired or replaced under the terms of the "repeated failures" clause (Section 38.0 Performance Reliability). The new warranty period shall be effective from the date of acceptance of the repaired or replaced article.

39.2 The apparatus is of vital importance to the City in providing essential services and, accordingly, all warranty items brought to the attention of the Contractor by the City shall be rectified expediently. The City reserves the right to effect warranty repairs to the apparatus, at full cost to the Contractor, should the Contractor fail to perform in a timely manner.

39.3 In the case where the Bidder proposes that warranty work be performed by a third party or by the City of Winnipeg Fire Paramedic Service, the Bidder shall include a written detailed estimate with the bid. Any work performed by the Fire Paramedic Service Mechanical Services Branch shall be charged to the Contractor at the Branch's shop rate in effect at the time the work is performed. The City reserves the right to reject any bid where the proposal for warranty work is deemed unacceptable by the Supervisor of the Emergency Mechanical Services Branch.

39.4 In the case where the Contract Administrator and the Bidder have determined that the repair time will be in excess of five (5) calendar days, the Bidder shall supply a unit for use, equivalent to the one being offered during the downtime period at no cost to the City. In the case where the Contractor is unable to supply a similar unit to the City of Winnipeg during this downtime period, the Contractor shall be responsible for all costs including all incidental costs incurred by the City for the temporary supply from a third party.

40.0 PARTS AVAILABILITY

40.1 The Contractor shall have an established dealer/representative located within 10 km of the boundaries of the City of Winnipeg.

40.1.1 The Contractor's Winnipeg dealer/representative shall stock parts required for regular servicing, as outlined in the manufacturers service and maintenance manual.

40.2 The Contractor shall be responsible to ensure that regular servicing parts

are made available to the City of Winnipeg within a twenty-four (24) hour period.

40.3 In order to ensure a minimum downtime of the equipment, the Contractor shall maintain a stock of all replacement parts in North America, either in his/her own inventory or in that of an agency that normally supplies parts to the Contractor and shall be made available to the City of Winnipeg within twenty-four hours, consistent with the essential service requirements of the apparatus.

41.0 LITERATURE

41.1 Bidders shall submit current descriptive, detailed literature within forty-eight (48) hours of the request of the Contract Administrator.

FORM O: QUESTIONNAIRE

1.0 **STATE** the delivery time of the complete order from the date of official notification of award: (See D5.1)

_____

2.0 **LIST** any significant features that will be supplied standard on the unit being offered, but were not specifically mentioned in the Detailed Specifications:

_____

_____

3.0 **LIST** three current users of the offered model:

_____

_____

_____

4.0 **STATE** the location of the service facility:

_____

5.0 Does the equipment being offered meet or exceed the minimum requirements of the Detailed Specifications?

_____

6.0 **LIST** any deviations that might be considered less than equal to the Detailed Specifications:

_____

_____